BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM Lab Bench No. 142

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.
County Code Warren NPDES Permit No. ______
Discharge No. ______ Date Requested ______
Sample Point Identification impoundment
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab (X) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition sunny and cool Collected By Chuck Estes
Where Taken east side of impoundment near breech area

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene, Atrazine, Cyanazize	cool	2/7/83	3:00
2.	Sludge	DNBP	5ml H2SO4	"	3:15
3.		~~(Run totals and Ep~~			
4.		~~extract for these~~			
5.		~~parameters)~~			

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (X) field truck
V. LABORATORY: Received By DeJonnette King Date 2/8/83 Time 0815
Recorded By Dorothy Lewis Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/l		*
COD	(000340)	( )		mg/l		
TOC	(000680)	( )		mg/l		
Suspended Solids	(099000)	( )		mg/l		
TKN	(000625)	( )		mg/l		
Ammonia-N	(000610)	( )		mg/l		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/l		
Oil and Grease(1)	(000550)	( )		mg/l		
Oil and Grease(2)	(000550)	( )		mg/l		
Chlorides	(099016)	( )		mg/l		
Phenol	(032730)	( )		mg/l		
Total Chromium	(001034)	( )		mg/l		
Hex. Chromium	(001032)	( )		mg/l		
Zinc	(001092)	( )		mg/l		
Copper	(001042)	( )		mg/l		
Lead	(017501)	( )		mg/l		
Cyanide	(000722)	( )		mg/l		
Atrazine (EPT)		(X)	12550	ug/l	MB	3-15-83
Cyanozine (EPT)		(X)	650	ug/l	MB	3-15-83
Toxaphene (EPT)		(X)	< 20	ug/l	MB	3-15-83
DNBP (EPT)		(X)				
Atrazine (Total)		(X)	7,030	mg/kg	MB	4-11-83
Cyanozine (Total)		(X)	< 112	mg/kg	MB	4-11-83
Toxaphene (Total)		(X)	280	mg/kg	MB	4-11-83
DNBP (Total)		(X)				
		( )				
		( )				

Remarks DNBP results will follow

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ____________

I. GENERAL INFORMATION: Facility Name ____________________

County Code ____________ NPDES Permit No. ____________

Discharge No. ____________ Date Requested ____________

Sample Point Identification ____________________

Requested By ____________ Data To ____________

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____________

II. SAMPLE IDENTIFICATION:

Environment Condition ____________ Collected By ____________

Where Taken ____________________

	Type	Parameters	Preservative	Date	Time
1.					
2.					
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ____________

V. LABORATORY: Received By ____________ Date ____________ Time ____________

Recorded By ____________ Date Sent to State Office ____________

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ____________________

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM — Lab Bench No. 141

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.
County Code warren NPDES Permit No. ______
Discharge No. ______ Date Requested ______
Sample Point Identification stream bank
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab (X) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition sunny and cool Collected By Chuck Estes
Where Taken on the east side of the impoundment levee at the breech area near the stream

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene, Atrazine, Cyanazine	Cool	2/7/83	3:10
2.	Sludge	DNBP	5ml H2SO4	2/7/83	4:00
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (X) Field truck

V. LABORATORY: Received By DeJonnette King Date 2/8/83 Time 0815
Recorded By Dorothy Lewis Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(X)	360 mg/kg	MB	4-12-83
Atrazine		(X)	645 mg/kg	MB	4-12-83
Cyanozine		(X)	<112 mg/kg	MB	4-12-83
DNBP		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks DNBP results will follow when completed

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ____________

I. GENERAL INFORMATION: Facility Name ______________________________

County Code ____________ NPDES Permit No. ____________

Discharge No. ____________ Date Requested ____________

Sample Point Identification ______________________________

Requested By ____________ Data To ____________

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____________

II. SAMPLE IDENTIFICATION:

Environment Condition ____________ Collected By ____________

Where Taken ______________________________

	Type	Parameters	Preservative	Date	Time
1.					
2.					
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ____________

V. LABORATORY: Received By ____________ Date ____________ Time ____________

Recorded By ____________ Date Sent to State Office ____________

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ______________________________

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.
County Code Warren NPDES Permit No. ______
Discharge No. ______ Date Requested ______
Sample Point Identification Impoundment
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab (✓) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition Sunny and cool Collected By Chuck Estes
Where Taken East side of impoundment near breech area

	Type	Parameters	Preservative	Date	Time
1.	sludge	toxaphene, Atrazine, Cynazine	cool	2-7-83	3:00
2.	sludge	DNBP	5ml H_2SO_4	2-7-83	3:15
3.		Run Totals and EP			
4.		Extract for these			
5.		parameters			

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (✓) field truck

V. LABORATORY: Received By DeConnette King Date 2-8-83 Time 0815
Recorded By DeConnette King Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	( )		mg/1		
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	( )		mg/1		
Cyanide	(000722)	( )		mg/1		
Atrazine (EPT)		(X)	12550	ug/l	MB	3-15-83
Cyanazine (EPT)		(X)	1650	ug/l	MB	3-15-83
Toxaphene (EPT)		(✓)	< 20	ug/l	MB	3-15-83
DNBP (EPT)		( )				
		( )				
Atrazine, Total		( )	7,030	mg/kg	MB	4-11-83
Cyanazine, Total		( )	< 112	mg/kg	MB	4-13-83
Toxaphene Total		( )	280	mg/kg	MB	4-12-83
DNBP		( )				
		( )				

Remarks DNBP Results will follow

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.
County Code Warren NPDES Permit No. ______
Discharge No. ______ Date Requested ______
Sample Point Identification stream bank
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab (✓) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition sunny and cool Collected By Chuck Estes
Where Taken on the east side of the impoundment levee at the breach area near the stream

	Type	Parameters	Preservative	Date	Time
1.	sludge	toxaphene, atrazine, cyanazine	cool	2-7-83	3:10
2.	sludge	DNBP	5ml H_2SO_4	2-7-83	4:00
3.		~~[illegible] EP Toxicity~~			
4.		~~Extract for both~~			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (X) field truck
V. LABORATORY: Received By DeJonnette King Date 2-8-83 Time 0815
Recorded By Dorothy Jones Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		( )	360 mg/Kg	MB	4-12-83
Atrazine		( )	645 mg/Kg	MB	4-12-83
Cyanazine		( )	<1.2 mg/Kg	MB	4-13-83
DNBP		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks DNBP Results will follow when completed

*Date of Test Initiation

141

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1298

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren NPDES Permit No.
Discharge No. Date Requested
Sample Point Identification Grid I
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition Clear, mild Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample I	Organics Total	Cool	10-28-82	1000
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020
Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(x)	10.3 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(x)	5.63 mg/kg	MB	11-30-82
Atrazine		(x)	<1 mg/kg	MB	11-30-82
Cyanozine		(x)	<1 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1298

I. GENERAL INFORMATION: Facility Name Vertac Chemical

County Code Warren NPDES Permit No.

Discharge No. Date Requested

Sample Point Identification Grid I

Requested By Chuck Estes Data To Chuck Estes

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:

Environment Condition Clear, mild Collected By Chuck Estes

Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample I	Organics Total	Cool	10-28-82	1000
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020

Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	10.3 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	5.63 mg/kg	MB	11-30-82
Atrazine		(X)	<1 mg/kg	MB	11-30-82
Cyanozine		(X)	<1 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ____________

I. GENERAL INFORMATION: Facility Name Vertac Chemical

County Code Warren NPDES Permit No. ____________

Discharge No. ____________ Date Requested ____________

Sample Point Identification Grid I

Requested By Chuck Estes Data To Chuck Estes

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____________

II. SAMPLE IDENTIFICATION:

Environment Condition clear, mild Collected By Chuck Estes

Where Taken old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample I	Organics Total	cool	10/28/82	10 AM
2.		only Atrazine,			
3.		DNBP, [redacted]			
4.		cyanazine, toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) BO Vehicle ( ) Other (✓) truck

V. LABORATORY: Received By DeAnnette King Date 11-2-82 Time 1020

Recorded By Dorothy Jenn[illegible] Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(X)	10.3 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	5.63 mg/kg	MB	11-30-82
Atrazine		(X)	<1 mg/kg	MB	11-30-82
Cyanazine		(X)	<1 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ____________

*Date of Test Initiation

1298

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1297

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren
NPDES Permit No.
Discharge No.
Date Requested
Sample Point Identification Grid II
Requested By Chuck Estes
Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition Clear, mild
Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample II	Organics Total	Cool	10-28-82	1120
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020
Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(X)	3.07 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	2.01 mg/kg	MB	11-30-82
Atrazine		(X)	42.7 mg/kg	MB	11-30-82
Cyanozine		(X)	3.92 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM Lab Bench No. 1297

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren NPDES Permit No.
Discharge No. Date Requested
Sample Point Identification Grid II
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition Clear, mild Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample II	Organics Total	Cool	10-28-82	1120
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020
Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(X)	3.07 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	2.01 mg/kg	MB	11-30-82
Atrazine		(X)	42.7 mg/kg	MB	11-30-82
Cyanozine		(X)	3.92 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ____

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren NPDES Permit No. ____
Discharge No. ____ Date Requested ____
Sample Point Identification GRID II
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____

II. SAMPLE IDENTIFICATION:
Environment Condition clear, mild Collected By Chuck Estes
Where Taken Old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample II	Organics Total	Cool	10/28/82	11:20 Am
2.		only Atrazine,			
3.		DNBP, cyanazine			
4.		and toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) BO Vehicle ( ) Other (✓) truck

V. LABORATORY: Received By DeJannette King Date 11-2-82 Time 1020
Recorded By Dorothy Jones Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	3.07 mg/kg	MB	12-1-82
Di Nitro Butyl		(X)	2.01 mg/kg	MB	11-30-82
Atrazine		(X)	42.7 mg/kg	MB	11-30-82
Cyanazine		(X)	3.92 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ____

*Date of Test Initiation

1290

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1296

I. GENERAL INFORMATION: Facility Name Vertac Chemical

County Code Warren NPDES Permit No.

Discharge No. Date Requested

Sample Point Identification Grid III

Requested By Chuck Estes Data To Chuck Estes

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:

Environment Condition Clear, mild Collected By Chuck Estes

Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample III	Total Organics	Cool	10-28-82	120
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020

Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	17.4 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	145 mg/kg	MB	11-30-82
Atrazine		(X)	152 mg/kg	MB	11-30-82
Cyanozine		(X)	22.4 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL

SAMPLE REQUEST FORM — Lab Bench No. 1296

I. GENERAL INFORMATION: Facility Name Vertac Chemical

County Code Warren — NPDES Permit No. ____

Discharge No. ____ — Date Requested ____

Sample Point Identification Grid III

Requested By Chuck Estes — Data To Chuck Estes

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____

II. SAMPLE IDENTIFICATION:

Environment Condition Clear, mild — Collected By Chuck Estes

Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample III	Total Organics	Cool 1	10-28-82	120
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King — Date 11-2-82 — Time 1020

Recorded By Dorothy Lewis — Date Sent to State Office 1298-82

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	( )		mg/1		
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	( )		mg/1		
Cyanide	(000722)	( )		mg/1		
Toxaphene		(X)	17.4	mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	135	mg/kg	MB	11-30-82
Atrazine		(X)	152	mg/kg	MB	11-30-82
Cyanozine		(X)	22.4	mg/kg	MB	12-1-82
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks ____

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM
Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren   NPDES Permit No. ______
Discharge No. ______   Date Requested ______
Sample Point Identification Grid III
Requested By Chuck Estes   Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition clear, mild   Collected By Chuck Estes
Where Taken Old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample III	Total Organics	cool	10/28/82	1:20 PM
2.		only Atrazine,			
3.		DNBP, Cyanazine			
4.		and toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) BPC Vehicle ( ) Other (X) Truck
V. LABORATORY: Received By DeJeannette King   Date 11-2-82   Time 1020
Recorded By Dorothy Flemm   Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	( )		mg/1		
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	( )		mg/1		
Cyanide	(000722)	( )		mg/1		
Toxaphene		(X)	17.4	mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	145	mg/kg	MB	11-30-82
Atrazine		(X)	152	mg/kg	MB	11-30-82
Cyanazine		(X)	224	mg/kg	MB	12-1-82
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks ______

*Date of Test Initiation

1296

4

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1295

I. GENERAL INFORMATION: Facility Name Vertac Chemial
County Code Warren NPDES Permit No. ______
Discharge No. ______ Date Requested ______
Sample Point Identification Grid IV
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition Clear, mild Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample IV	Total Organics	Cool	10-28-82	230
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ______

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020
Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/l		*
COD	(000340)	( )		mg/l		
TOC	(000680)	( )		mg/l		
Suspended Solids	(099000)	( )		mg/l		
TKN	(000625)	( )		mg/l		
Ammonia-N	(000610)	( )		mg/l		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/l		
Oil and Grease(1)	(000550)	( )		mg/l		
Oil and Grease(2)	(000550)	( )		mg/l		
Chlorides	(099016)	( )		mg/l		
Phenol	(032730)	( )		mg/l		
Total Chromium	(001034)	( )		mg/l		
Hex. Chromium	(001032)	( )		mg/l		
Zinc	(001092)	( )		mg/l		
Copper	(001042)	( )		mg/l		
Lead	(017501)	( )		mg/l		
Cyanide	(000722)	( )		mg/l		
Toxaphene		(X)	36.4	mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	.711	mg/kg	MB	11-30-82
Atrazine		(X)	199	mg/kg	MB	11-30-82
Cyanozine		(X)	22.5	mg/kg	MB	12-1-82
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks ______

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL

SAMPLE REQUEST FORM   Lab Bench No. ________

I. GENERAL INFORMATION: Facility Name ________

County Code ________ NPDES Permit No. ________

Discharge No. ________ Date Requested ________

Sample Point Identification ________

Requested By ________ Data To ________

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ________

II. SAMPLE IDENTIFICATION:

Environment Condition ________ Collected By ________

Where Taken ________

	Type	Parameters	Preservative	Date	Time
1.					
2.					
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ________

V. LABORATORY: Received By ________ Date ________ Time ________

Recorded By ________ Date Sent to State Office ________

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ________

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM   Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren   NPDES Permit No. ______
Discharge No. ______   Date Requested ______
Sample Point Identification Grid IV
Requested By Chuck Estes   Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition clear, mild   Collected By Chuck Estes
Where Taken old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample IV	Total Organics	cool	10/28/82	2:30 PM
2.		only Atrazine,			
3.		DNBP, cyanazine,			
4.		and Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (✓) Truck
V. LABORATORY: Received By DeJonnette King   Date 11-2-82   Time 1020
Recorded By Dorothy Jenis   Date Sent to State Office 12-7-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	36.4 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	.71 mg/kg	MB	11-30-82
Atrazine		(X)	199 mg/kg	MB	11-30-82
Cyanazine		(X)	22.5 mg/kg	MB	12-1-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ______

*Date of Test Initiation

1295

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1294

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren NPDES Permit No.
Discharge No. Date Requested
Sample Point Identification Grin V
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition Clear, mild Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample V	Total Organics	Cool	10-28-82	320
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020
Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	3.55 mg/kg	MB	12-1-82
Atrazine		(X)	65.8 mg/kg	MB	12-1-82
Cyanozine		(X)	2.02 mg/kg	MB	12-1-82
Di Nitro Butyl	Phenol	(X)	.200 mg/kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL

SAMPLE REQUEST FORM

Lab Bench No. ____

I. GENERAL INFORMATION: Facility Name ____

County Code ____ NPDES Permit No. ____

Discharge No. ____ Date Requested ____

Sample Point Identification ____

Requested By ____ Data To ____

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____

II. SAMPLE IDENTIFICATION:

Environment Condition ____ Collected By ____

Where Taken ____

	Type	Parameters	Preservative	Date	Time
1.					
2.					
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ____

V. LABORATORY: Received By ____ Date ____ Time ____

Recorded By ____ Date Sent to State Office ____

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ____

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM   Lab Bench No. ____

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren   NPDES Permit No. ____
Discharge No. ____   Date Requested ____
Sample Point Identification Grid V
Requested By Chuck Estes   Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____

II. SAMPLE IDENTIFICATION:
Environment Condition clear, mild   Collected By Chuck Estes
Where Taken Old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample V	Total Organics	Cool	10/28/82	3:20 PM
2.		only Atrazine,			
3.		DNBP, cyanazine			
4.		and toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (✓) Truck

V. LABORATORY: Received By DeAnnette King   Date 11-2-82   Time 1020
Recorded By Dorothy Ferris   Date Sent to State Office 11-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(x)	3.55 mg/Kg	MB	12-1-82
Atrazine		(x)	65.8 mg/Kg	DB	12-1-82
Cyanazine		(x)	2.02 mg/Kg	DB	12-1-82
Di Nitro Butyl	Phenol	(x)	.200 mg/Kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ____

*Date of Test Initiation

1294

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1293

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren NPDES Permit No.
Discharge No. Date Requested
Sample Point Identification Grin VI
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition Clear, mild Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil sample VI	Total Organics	Cool	10-28-82	410
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020
Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	48.7 mg/kg	MB	12-1-82
Atrazine		(X)	169 mg/kg	MB	11-30-82
Cyanozine		(X)	10.4 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	101 mg/kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name ______

County Code ______ NPDES Permit No. ______

Discharge No. ______ Date Requested ______

Sample Point Identification ______

Requested By ______ Data To ______

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:

Environment Condition ______ Collected By ______

Where Taken ______

	Type	Parameters	Preservative	Date	Time
1.					
2.					
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ______

V. LABORATORY: Received By ______ Date ______ Time ______

Recorded By ______ Date Sent to State Office ______

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ______

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM — Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name: Vertac Chemical
County Code: Warren — NPDES Permit No.: ______
Discharge No.: ______ — Date Requested: ______
Sample Point Identification: Grid VI
Requested By: Chuck Estes — Data To: Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition: Clear, mild — Collected By: Chuck Estes
Where Taken: old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample VI	Total Organics	Cool	10/28/82	4:10 PM
2.		only Atrazine,			
3.		DNBP, Cyanazine			
4.		and Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (✓) Truck
V. LABORATORY: Received By: Antoinette King — Date: 11-2-82 — Time: 1020
Recorded By: [illegible signature] — Date Sent to State Office: 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	48.7 mg/kg	MB	12-1-82
Atrazine		(X)	169 mg/kg	MB	11-30-82
Cyanazine		(X)	10.4 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	101 mg/kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ______

*Date of Test Initiation

1293

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM   Lab Bench No. 1292

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren   NPDES Permit No.
Discharge No.   Date Requested
Sample Point Identification Grin VII
Requested By Chuck Estes   Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition Cloudy, mild   Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample VII	Total Organics	Cool	10-29-82	930
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King   Date 11-2-82   Time 1020
Recorded By Dorothy Lewis   Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	23.5 mg/kg	MB	12-1-82
Atrazine		(X)	94.8 mg/kg	MB	11-30-82
Cyanozine		(X)	<3 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	21.2 mg/kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ____________

I. GENERAL INFORMATION: Facility Name ____________
County Code ____________ NPDES Permit No. ____________
Discharge No. ____________ Date Requested ____________
Sample Point Identification ____________
Requested By ____________ Data To ____________
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____________

II. SAMPLE IDENTIFICATION:
Environment Condition ____________ Collected By ____________
Where Taken ____________

	Type	Parameters	Preservative	Date	Time
1.					
2.					
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ____________

V. LABORATORY: Received By ____________ Date ____________ Time ____________
Recorded By ____________ Date Sent to State Office ____________

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ____________

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM   Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren   NPDES Permit No. ______
Discharge No. ______   Date Requested ______
Sample Point Identification Grid VII
Requested By Chuck Estes   Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition cloudy, mild   Collected By Chuck Estes
Where Taken old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample VII	Total Organics	cool	10/29/82	9:30 AM
2.		Only Atrazine,			
3.		DNBP, Cyanazine			
4.		and Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) PO Vehicle ( ) Other (✓) Truck
V. LABORATORY: Received By DeJonnette King   Date 11-2-82   Time 1020
Recorded By Dorothy Gellin   Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	23.5 mg/kg	MB	12-1-82
Atrazine		(X)	94.8 mg/kg	MB	11-30-82
Cyanazine		(X)	<3 mg/kg	MB	12-1-82
DiNitro Butyl Phenol		(X)	21.2 mg/kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ______

*Date of Test Initiation

1292

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1291

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren NPDES Permit No.
Discharge No. Date Requested
Sample Point Identification Grin VIII
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition Cloudy, mild Collected By Chuck Estes
Where Taken Old landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample VIII	Total Organics	Cool	10-29-82	1020
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		Toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By DeJonnette King Date 11-2-82 Time 1020
Recorded By Dorothy Lewis Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	34.3 mg/kg	MB	12-1-82
Atrazine		(X)	7.85 mg/kg	MB	11-30-82
Cyanozine		(X)	<2 mg/kg	MB	12-1-82
Di Nitro Butyl Phenol		(X)	.983 mg/kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. ____________

I. GENERAL INFORMATION: Facility Name ____________
County Code ____________ NPDES Permit No. ____________
Discharge No. ____________ Date Requested ____________
Sample Point Identification ____________
Requested By ____________ Data To ____________
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____________

II. SAMPLE IDENTIFICATION:
Environment Condition ____________ Collected By ____________
Where Taken ____________

	Type	Parameters	Preservative	Date	Time
1.					
2.					
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ____________

V. LABORATORY: Received By ____________ Date ____________ Time ____________
Recorded By ____________ Date Sent to State Office ____________

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ____________

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM   Lab Bench No. ______

I. GENERAL INFORMATION: Facility Name Vertac Chemical
County Code Warren   NPDES Permit No. ______
Discharge No. ______   Date Requested ______
Sample Point Identification Grid VIII
Requested By Chuck Estes   Data To Chuck Estes
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition cloudy, mild   Collected By Chuck Estes
Where Taken Old Landfill

	Type	Parameters	Preservative	Date	Time
1.	Soil Sample VIII	Total Organics	Cool	10/29/82	10:20 AM
2.		only Atrazine			
3.		DNBP, Cyanazine			
4.		And toxaphene			
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (✓) Truck
V. LABORATORY: Received By Debornette King   Date 11-2-82   Time 1020
Recorded By Dorothy Lewis   Date Sent to State Office 12-8-82

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Toxaphene		(X)	34.3 mg/kg	MB	12-1-82
Atrazine		(X)	1.85 mg/kg	MB	11-30-82
Cyanazine		(X)	<2 mg/kg	MB	12-1-82
DiNitro Butyl Phenol		(X)	.983 mg/kg	MB	11-30-82
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks ______

*Date of Test Initiation

1291

U.S. DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E. I. du Pont de Nemours & Co., Inc.	EMERGENCY TELEPHONE NO.: (302) 774-7500
ADDRESS (Number, Street, City, State, and ZIP Code): Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: p-Nitro Sodium Phenolate	TRADE NAME AND SYNONYMS: p-Nitrophenol Soda Salt
CHEMICAL FAMILY: Aromatic nitro compound	FORMULA: $C_6H_4NO_4ONa$ $\cancel{4H_2O}$ $2H_2O$

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

~~NOTICE FROM DU PONT~~

"The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process."

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
This section is not applicable. Product may contain up to 26% water.		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	Decomp.	SPECIFIC GRAVITY ($H_2O=1$)	1.3
VAPOR PRESSURE (mm Hg.)	---	PERCENT VOLATILE BY VOLUME (%)	Not Applicable
VAPOR DENSITY (AIR=1)	---	EVAPORATION RATE (___ =1)	Not Applicable
SOLUBILITY IN WATER	Soluble		

APPEARANCE AND ODOR: Yellow crystalline solid, slight nitro compound odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): Not available	FLAMMABLE LIMITS: Not available		Lel	Uel

EXTINGUISHING MEDIA: Water

SPECIAL FIRE FIGHTING PROCEDURES: Deluge with water. Avoid exposure to toxic fumes. If exposure is likely, complete body protection may be required.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Rapid self sustaining combustion starts at 482°F. Explosion hazard may exist in cases of significant fires.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE Not available.

EFFECTS OF OVEREXPOSURE
p-Nitro Sodium Phenolate is cyanogenic and skin irritant. Expos symptoms include bluish lips or fingernails; headache; nausea; a fatigue or tissue damage.

EMERGENCY AND FIRST AID PROCEDURES
Remove from source of exposure; remove any contaminated clothing h exposed parts of body with water. Obtain prompt medical treatme for cyanosis or chemical burns.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE	X	CONDITIONS TO AVOID Unstable at autodecomposition temp.
	STABLE		

INCOMPATABILITY (Materials to avoid) Oxiding agents

HAZARDOUS DECOMPOSITION PRODUCTS Oxides of nitrogen, sodium hydroxide.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Clean up area followed by thorough washing to remove residual material.

WASTE DISPOSAL METHOD Quantities less than 500 pounds may be incinerate open area. Consult supplier for major problems.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
If dust is present, use suitable dust respirator.

VENTILATION	LOCAL EXHAUST X	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES Rubber gloves | EYE PROTECTION Side shield safety glasses

OTHER PROTECTIVE EQUIPMENT Not ordinarily required.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Use normal care to prevent body contact. Keep material wet and use non-sparking tools for handling. Store in low fire hazard

OTHER PRECAUTIONS

1	Sampling by EPA	10/81	Identified contamination in ditch.

Vertac - Background Info. for Commission Meeting

2	Meeting	4/15/82	Discussed inadequacies of wells
3	Letter from Vertac	6/21/82	Indicated intent to cut down hill around old ponds + landfill.
4	Letter from BPC	6/28/82	Requested submittal of ultimate site mgt. plan prior to beginning any work.
5	Letter from Vertac	7/19/82	Said they would develop timetable for action on site
6	Phone Conv.	Mid-aug.	Requested site plan again.
7	Letter from Vertac	9/29/82	Topo map submitted
8	Letter from Vertac	9/30/82	Sketch of hill area submitted
9	Sampling	10/7/82	More extensive soil sampling.

Order

1/1/83 finish soil sampling
2/1/83 detailed plan
2/1/83 before + after topos
4/1/83 add'l wells

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Z 442 293 412

Vicksburg chemical company

NOV - 8 2000
DEQ-EPD

Dr. Judy Sophianopoulos
Waste Compliance Section
RCRA & FF Branch
U.S. EPA, Region IV
Mailcode 4DW-RCRA
61 Forsyth Street, SW
Atlanta, Georgia 30303

Re: Cedar Chemical Company
Consent Decree Cvivil Number W92-0008B)
SWMU #2 Sampling per Letter of July 19, 2000

November 3, 2000

Dear Dr. Sophianopoulos:

Please find with this letter results of samples taken within SWMU #2 at the Cedar Chemical (Vicksburg Chemical) site in Vicksburg, MS. Per your letter of July 19, 2000, the sampling was conducted prior to placing sediments from the South Pond (SWMU #3) on top of the unit as was requested by Vicksburg and discussed in a letter from MSDEQ's Mr. Scott Mills, also dated July 19, 2000 (copy attached.)

The conditions of your letter were met and are discussed below:

1. Sampling was performed by Mr. Richard Karkkainen and Mr. Dean Lowe of URS-Greiner (formerly Woodward-Clyde) in accordance with the requirements of the Decree.

2. The sediments were sampled prior to placement and analyzed for EP toxicity. No hazardous characteristic was detected. A copy of the results is attached.

3. The lagoon bottoms were managed as required by MSDEQ. No leakage or seepage was experienced.

4. There was no need to utilize the alternate settling area.

5. The sediments placed in SWMU #2 remain there and are easily sampled if necessary. Run-off from this area is conducted to the South Pond (SWMU #3.)

6. This letter and the attachments are responsive to Condition 6.

The Potassium People
P.O. Box 821003 • Vicksburg, MS 39182
Bus: (601) 636-1231 • Fax: (601) 636-5767

Please contact me with any questions there may be concerning this matter.

Sincerely,

Steven T. Boswell
Director of Env. Affairs

STB: pc

xc: Mr. Mills, MSDEQ
Mr. Karkkainen, URS-Greiner

ARGUS ANALYTICAL, INC.
235 Highpoint Drive
Ridgeland, Mississippi 39157
Telephone: 601/957-2676 FAX: 601/957-1887

To: Vicksburg Chemical
PO Box 821003
Vicksburg, MS 39182

Attn: Eric Blush

Date Reported: 08/01/00

Date Sampled: 07/19/00
Time Sampled: 11:00
Sampled by: E. Blush

Date Received: 07/21/00

Project ID/Location: Sludge Analysis Pond 'C' Fire Results July 20

Project Number:

Sample Description: Pond C Sludge

Sample Number: AA92829

Sample Matrix: SLUDGE

Page Number: 1

Parameter	Result	Det Limit	Reg Limit	Units	Method	Analysts	Date
TCLP Metals							
Arsenic, TCLP	ND	0.05	5	mg/L	200.7	BTH	07/25/00
Barium, TCLP	0.25	0.01	100	mg/L	200.7	BTH	07/25/00
Cadmium, TCLP	ND	0.02	1	mg/L	200.7	BTH	07/25/00
Chromium, TCLP	ND	0.05	5	mg/L	200.7	BTH	07/25/00
Lead, TCLP	ND	0.05	5	mg/L	200.7	BTH	07/25/00
Mercury, TCLP	ND	0.0002	.2	mg/L	7470	ERM	07/25/00
Selenium, TCLP	ND	0.05	1	mg/L	200.7	BTH	07/25/00
Silver, TCLP	ND	0.005	5	mg/L	200.7	BTH	07/25/00
TCLP Volatile Organics							
Benzene	ND	0.1	.5	mg/L	8260B	MMP	07/28/00
Carbon tetrachloride	ND	0.1	.5	mg/L	8260B	MMP	07/28/00
Chlorobenzene	ND	0.1	100	mg/L	8260B	MMP	07/28/00
Chloroform	ND	0.1	6	mg/L	8260B	MMP	07/28/00
1,2-Dichloroethane	ND	0.1	.5	mg/L	8260B	MMP	07/28/00
1,1-Dichloroethylene	ND	0.1	.7	mg/L	8260B	MMP	07/28/00
Methyl ethyl ketone	ND	1.0	200	mg/L	8260B	MMP	07/28/00
Tetrachloroethylene	ND	0.1	.7	mg/L	8260B	MMP	07/28/00
Trichloroethylene	ND	0.1	.5	mg/L	8260B	MMP	07/28/00
Vinyl chloride	ND	0.1	.2	mg/L	8260B	MMP	07/28/00
TCLP Semivolatile Organics							
2,4-Dinitrotoluene	ND	0.05	.13	mg/L	8270C	RLT	07/25/00
Hexachlorobenzene	ND	0.05	.13	mg/L	8270C	RLT	07/25/00
Hexachlorobutadiene	ND	0.1	.5	mg/L	8270C	RLT	07/25/00
1,4-Dichlorobenzene	ND	0.1	7.5	mg/L	8270C	RLT	07/25/00
Hexachloroethane	ND	0.1	3	mg/L	8270C	RLT	07/25/00

Sample Description: Pond C[illegible]dge

Sample Number: AA92829

Sample Matrix: SLUDGE

Parameter	Result	Det Limit	Reg Limit	Units	Method	Analysts	Date
Nitrobenzene	ND	0.1	2	mg/L	8270C	RLT	07/25/00
Pyridine	ND	0.1	5	mg/L	8270C	RLT	07/25/00
Cresols, Total	ND	0.1	200	mg/L	8270C	RLT	07/25/00
Pentachlorophenol	ND	0.1	100	mg/L	8270C	RLT	07/25/00
2,4,5-Trichlorophenol	ND	0.1	400	mg/L	8270C	RLT	07/25/00
2,4,6-Trichlorophenol	ND	0.1	2	mg/L	8270C	RLT	07/25/00
TCLP Pesticides							
Chlordane	ND	0.015	.03	mg/L	8081A	MMP	07/31/00
Endrin	ND	0.01	.02	mg/L	8081A	MMP	07/31/00
Heptachlor	ND	0.005	.008	mg/L	8081A	MMP	07/31/00
Heptachlor epoxide	ND	0.005	.008	mg/L	8081A	MMP	07/31/00
Lindane	ND	0.2	.4	mg/L	8081A	MMP	07/31/00
Methoxychlor	ND	1.0	10	mg/L	8081A	MMP	07/31/00
Toxaphene	ND	0.25	.25	mg/L	8081A	MMP	07/31/00
TCLP Herbicides							
2,4-D	ND	5.0	10	mg/L	8150	MMP	07/31/00
2,4,5-TP (Silvex)	ND	0.5	1	mg/L	8150	MMP	07/31/00

ND = Not Detected NC = Not Corrosive
Reg Limits apply to TCLP only;
Reg Limit of "0" indicates not applicable.
Acceptable range for Corrosivity (pH) = 2.0-12.5

Quality Assurance/Quality Control

B. G. Giessner, Ph.D.

tclpr02

ARGUS ANALYTICAL, INC.
235 Highpoint Drive
Ridgeland, Mississippi 39157
Telephone: 601/957-2676 FAX: 601/957-1887

To: Vicksburg Chemical
PO Box 821003
Vicksburg, MS 39182

Attn: Eric Blush

Date Reported: 08/01/00

Date Sampled: 07/19/00
Time Sampled: 11:00
Sampled by: E. Blush

Project ID/Location: Sludge Analysis Pond 'C'
Fire Results July 20

Date Received: 07/21/00

Sample Description: Pond C Sludge

Sample Number: AA92830

Project Number:

Sample Matrix: SLUDGE

Parameter	Result	Det Limit	Units	Method	Analysts	Date
Toxaphene	ND	1	ug/L	8081A	MMP	07/31/00
Dinoseb	0.010	0.002	mg/L	8270C	RLT	07/31/00

ND -- Not Detected

EPA 200.7/6010B was used by analysts BTH

argusnd

Quality Assurance/Quality Control

B. G. Giessner, Ph.D.

FILE COPY

STATE OF MISSISSIPPI

DEPARTMENT OF ENVIRONMENTAL QUALITY

RAY MABUS

GOVERNOR

April 22, 1991

Mr. Steven T. Boswell
Cedar Chemical Corporation
P. O. Box 3
Vicksburg, Mississippi 39180

Dear Mr. Boswell:

Due to the recently discovered presence of several volatile organic compounds (VOC's) in the blanket drain system of Impoundment A of the South Plant at your facility, the Mississippi Department of Environmental Quality hereby requests that you include the following parameters in all future quarterly groundwater monitoring events in all wells:

1. Carbon tetrachloride
2. Chloroform
3. Methyl Ethyl Ketone
4. Trichloroethylene

If you have any questions regarding this issue, please contact Mr. Trey Fleming of this office at 961-5171.

Sincerely,

Toby M Cook

Toby M. Cook, Coordinator
RCRA TSD Branch

TMC:TF:lfc

MEETING W/ CEDAR CHEMICAL

April 17, 1991

Present: Toby Cook, Trey Fleming > MDEQ

Steve Boswell - Cedar
Caleb Dana - Woodward Clyde

Cedar presented 1st quarter 1991 groundwater monitoring results, and also a report on TCLP sediment analysis and water samples.

1,1 DCE

A soil sample was TCLP-tested in January 1991 and failed the analysis for one parameter. Resampling data was included in this new report. Also sampling of the Solid Waste Consolidation Area (SWCA) leachate collection system and the blanket drain installed to collect inflow into Impoundment A from the northwest.

Currently, leachate from the blanket drain (1.5 gpm) no longer is discharged into Impoundment A (as it previously was), but is pumped directly to the plant's carbon absorption unit and discharged under NPDES permit.

Leachate from the SWCA is generated intermittently (based on rainfall) and is discharged into Impoundment A. Surface runoff from the South Plant also goes to Impoundment A. Impoundment A wastewater is then passed through carbon absorbers & discharged via NPDES. About 100 gpm non-process wastewater is also discharged to Impoundment A. Currently, their NPDES permit does not have discharge limits for volatiles!

They cited portions of the proposed rule for corrective actions (Federal Register July 27, 1990) relating to voluntary corrective actions and their work, and the necessity for obtaining a permit.

I believe their point was that the proposed regs would allow for treatment of waste without a permit under certain circumstances. However, it is not clear that they need a permit since the mixed waste streams are not TC.

Toby

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P.O. BOX 3
VICKSBURG, MS 39181
(601) 636-1231

HAND DELIVERED

Mr. Trey Fleming
Environmental Engineer
Mississippi Department of Environmental Quality
Bureau of Pollution Control
2380 Highway 80 West
Jackson, MS 39204

RECEIVED
APR 17 1991
DEPT. OF ENVIRONMENTAL QUALITY

April 17, 1991

Re: Cedar Chemical Corporation
South Pond Sediment and Liquid Analyses

Dear Mr. Fleming:

Please find attached a copy of the results of analysis of sediments and liquids associated with the Cedar Chemical "South Pond". The analyses were performed to characterise the sediments and liquids under the "toxicity" characteristic of 40 CFR 261.

Cedar wishes to meet with the MSDEQ to discuss the future handling of these materials. If there are any questions concerning this matter, please contact me.

Sincerely,

Steven T. Boswell

Steven T. Boswell
Director of Env. Affairs

STB: pc

xc: Mr. Ahlers
Mr. Madsen

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P.O. BOX 3
VICKSBURG, MS 39181
(601) 636-1231

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 413 276 207

RECEIVED
FEB 21 1991
Dept. of Environmental Quality
Bureau of Pollution Control

Mr. Toby Cook
Environmental Engineer
Mississippi Department of Environmental Quality
Bureau of Pollution Control
2380 Highway 80 West
Jackson, MS 39204

February 20, 1991

Re: Cedar Chemical Corporation
South Pond Closure Project
TCLP Results, Impoundment "C"

Dear Mr. Cook:

As we discussed by telephone, Cedar has re-sampled the impoundment in question along with Impoundment "B"and the "SWCA". The results of the re-sampling have not yet been received from our contractor, Woodward-Clyde. However, there has been verbal indication that the initial results have not confirmed the results reported to you in the original sampling.

It is Cedar's desire to use the extra data to confirm or reject the earlier sampling which indicates that Impoundment "C" contains sediment that may exhibit the toxicity characteristic due to the presence of 1,1-dichloroethylene, a compound Cedar has not manufactured, processed or used. Cedar expects to receive the results of the re-sampling very shortly and will furnish them to the MSDEQ for review.

Pending the evaluation of these data, Cedar will:

1. request the MSDEQ to consider the results of the earlier sampling to have been anomalous, and that the sediments are non-hazardous or,

2. proceed to develop a schedule and plan to manage the sediments as hazardous wastes.

If there are any questions concerning this matter, please contact me.

Sincerely,

Steven T. Boswell

Steven T. Boswell
Director of Env. Affairs

STB: pc

STATE OF MISSISSIPPI
DEPARTMENT OF ENVIRONMENTAL QUALITY
RAY MABUS
GOVERNOR

FEB. 13 1991

February 11, 1991

CERTIFIED MAIL NO. P 324 504 694

Mr. Steve Boswell
Director, Environmental Affairs
Cedar Chemical Corporation
P. O. Box 3
Vicksburg, Mississippi 39180

Dear Mr. Boswell:

Re: TCLP Results
Impoundment "C"

We have reviewed the sludge analysis data you submitted in connection with the closure of Impoundment "C". Your test result for 1,1-Dichloroethylene using the Toxicity Characteristic Leaching Procedure (TCLP) was reported as 1.9 mg/l. The Mississippi Hazardous Waste Management Regulations (MHWMR) Part 261.24 defines wastes containing TCLP concentrations of 0.7 mg/l of 1,1-Dichloroethylene as Hazardous Waste No. D029.

Cedar Chemical has therefore apparently managed hazardous waste in violation of the Mississippi Hazardous Waste Management Regulations. We request that you respond to this apparent violation within 10 days of receipt of this letter. This response should contain:
(1) actions that have been taken to correct the violation,
(2) schedule for correcting the violation, or (3) reasons that you believe the alleged violation did not exist. We will review this information before determining if further action including a penalty is warranted. Section 17-17-29 of the Mississippi Code Annotated (Supp. 1989) allows assessment of penalties not more than $25,000 per day per violation. Failure to submit this information may result in enforcement action.

If you have any questions, do not hesitate to contact me at (601) 961-5171.

Sincerely,

Toby M Cook

Toby M. Cook, P. E.
Coordinator, RCRA TSD Branch

TMC:els
cc: Mr. James H. Scarbrough, EPA

P 324 ~~504~~ 694

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

☆U.S.G.P.O. 1989-234-555

Sent to	Mr. Steve Boswell Director, Environmental Affairs Cedar Chemical Corp. P. O. Box 3 Vicksburg, MS 39180
Street and No.	
P.O., State and	
Postage	
Certified Fee	
Special Deliver	
Restricted Deli	
Return Receip to whom and	
Return Receip Date, and Add	
TOTAL Posta	
Postmark or	

PS Form 3800, June 1985

STATE OF MISSISSIPPI

DEPARTMENT OF ENVIRONMENTAL QUALITY

RAY MABUS
GOVERNOR

February 11, 1991

CERTIFIED MAIL NO. P 324 504 694

Mr. Steve Boswell
Director, Environmental Affairs
Cedar Chemical Corporation
P. O. Box 3
Vicksburg, Mississippi 39180

Dear Mr. Boswell:

Re: TCLP Results
Impoundment "C"

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(2) schedule for correcting the violation, or (3) reasons that you believe the alleged violation did not exist. We will review this information before determining if further action including a penalty is warranted. Section 17-17-29 of the Mississippi Code Annotated (Supp. 1989) allows assessment of penalties not more than $25,000 per day per violation. Failure to submit this information may result in enforcement action.

If you have any questions, do not hesitate to contact me at (601) 961-5171.

Sincerely,

Toby M. Cook, P. E.
Coordinator, RCRA TSD Branch

TMC:els
cc: Mr. James H. Scarbrough, EPA

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P.O. BOX 3
VICKSBURG, MS 39181
(601) 636-1231

Mr. Toby Cook
Environmental Engineer
Mississippi Department of Environmental Quality
Bureau of Pollution Control
2380 Highway 80 West
Jackson, MS 39204

Janaury 16, 1991

Re: TCLP Results, Impoundment "C"
Cedar Chemical Corp.

Dear Mr. Cook:

Please find attached results of TCLP analysis of the sediment in Impoundment "C" at Cedar Chemical's South Pond Closure project. Sampling was performed September 26, 1990. A diagram of sampling point is attached. A sample from Impoundment "B" is currently being analyzed.

Please contact me with any questions you may have.

Sincerely,

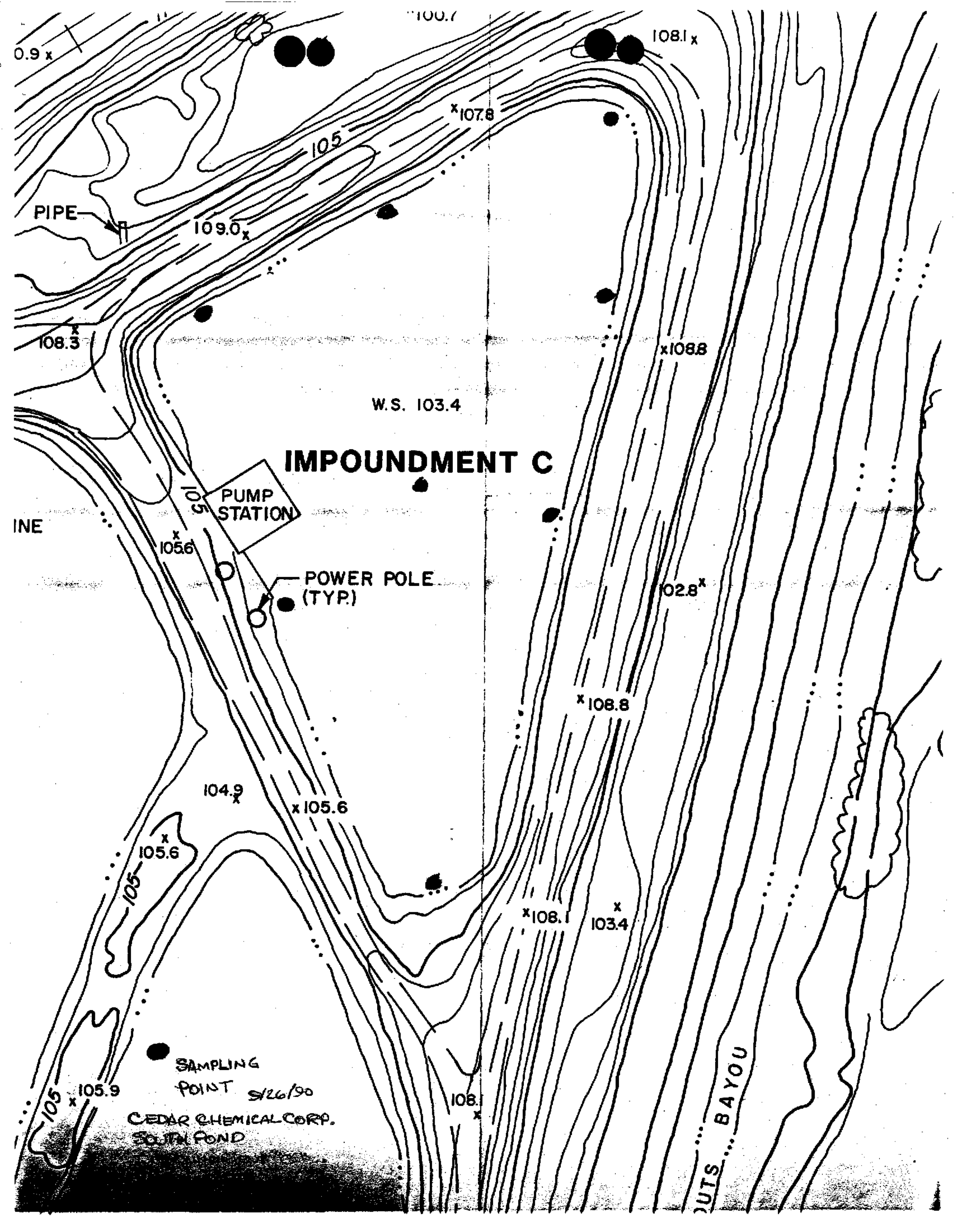
Steven T. Boswell

Steven T. Boswell
Dir. of Env. Affairs

STB: pc

xc: Mr. Ahlers
Mr. Madsen

DIVISION OF SOLID WASTE
REVIEWED BY TC
DATE 1/16/91
COMMENTS Copy sent to EPA


100.7
0.9 x
108.1 x
x107.8
105
PIPE
109.0 x
108.3
x108.8
W.S. 103.4
IMPOUNDMENT C
PUMP STATION
105
INE
105.6
POWER POLE (TYP.)
102.8
x108.8
104.9
x 105.6
105.6
105
x108.1
103.4
SAMPLING POINT 5/26/90
105
x 105.9
108.1
CEDAR CHEMICAL CORP.
SOUTH POND
BAYOU

EPS Analytical Services

5360 I-55 North • Jackson, MS 39211 • Telephone (601) 956-1400 • FAX (601) 956-2365

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 10/17/90 COLLECTED BY: CLIENT REPORT NO.: 16186 PAGE NO.: 1
LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS. RECEIPT DATE: 09/27/90 PROJECT NO.:

ANALYTE	UNITS	LABORATORY RESULTS	REGULATORY LIMIT			ANALYSIS INFORMATION: ANALYST	DATE	TIME	BATCH QUALITY CONTROL: SPIKE VALUE	% RECOVERY	RELATIVE % DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		20676.00									
2,4,5-Trichlorophenol, TCLP Leachable	mg/l	<0.01				SCP	10/07/90	13:00	1.0	111	0
2[illegible]-Trichlorophenol, TCLP Leachable	mg/l	<0.01				SCP	10/07/90	13:00	1.0	111	0
2,4-D, TCLP Leachable	mg/l	<0.01				SCP	10/10/90	11:00	0.1	54	0
Silver, TCLP Leachable	mg/l	0.01				BSC	10/03/90	12:10	0.40	98	0
Arsenic, TCLP Leachable	mg/l	1.6				BSC	10/01/90	22:00	0.200	88	0
Barium, TCLP Leachable	mg/l	<0.5				BSC	10/02/90	16:00	0.200	105	0
Benzene, TCLP Leachable	mg/l	<0.001				SCP	10/11/90	08:24	0.02	113	0
Chlorobenzene, TCLP Leachable	mg/l	<0.001				SCP	10/11/90	08:24	0.02	113	0
Cadmium, TCLP Leachable	mg/l	0.01				BSC	10/02/90	10:20	0.40	95	0

SUPPLEMENTARY INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, March 1990, "Test Methods for Evaluating Solid WAste" (SW-846).

SAMPLE DESCRIPTION:
20676.00 NORTH POND BOTTOM SAMPLE

COLLECTION DATE/TIME:
09/26/90 09/26/90 UNK

CERTIFICATION:

Ray Hudnall
Quality Assurance and Quality Control

Herbert A. Johnston
Analytical Services

EPS Analytical Services

5360 I-55 North • Jackson, MS 39211 • Telephone (601) 956-1400 • FAX (601) 956-2365

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 10/17/90 COLLECTED BY: CLIENT REPORT NO.: 16186 PAGE NO.:

LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS. RECEIPT DATE: 09/27/90 PROJECT NO.:

ANALYTE	UNITS	LABORATORY RESULTS	REGULATORY LIMIT			ANALYSIS INFORMATION: ANALYST	DATE	TIME	BATCH QUALITY CONTROL: SPIKE VALUE	% RECOVERY	RELATIVE DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		20676.00									
Chlordane, TCLP Leachable	mg/l	<0.00002				SCP	10/08/90	13:00	2.5	40	0
Chloroform, TCLP Leachable	mg/l	0.16				SCP	10/11/90	08:24	0.02	113	0
Chromium, TCLP Leachable	mg/l	0.02				BSC	10/01/90	12:45	1.00	96	0
Hexavalent Chromium, TCLP Leachable	mg/l	<0.02				BSC	10/01/90	12:45	1.00	96	0
Carbon Tetrachloride, TCLP Leachable	mg/l	<0.001				SCP	10/11/90	08:24	0.02	113	0
1,2-Dichloroethane, TCLP Leachable	mg/l	<0.001				SCP	10/11/90	08:24	0.02	113	0
1,1-Dichloroethylene, TCLP Leachable	mg/l	[illegible]				SCP	10/11/90	08:24	0.02	113	0
2,4-Dinitrotoluene, TCLP Leachable	mg/l	<0.01				SCP	10/07/90	13:00	0.125	102	3.9
Endrin, TCLP Leachable	mg/l	<0.00002				SCP	10/08/90	13:00	2.5	40	0

SUPPLEMENTARY INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, March 1990, "Test Methods for Evaluating Solid WAste" (SW-846).

SAMPLE DESCRIPTION:	COLLECTION DATE/TIME:	CERTIFICATION:
20676.00 NORTH POND BOTTOM SAMPLE	09/26/90 09/26/90 UNK	Ray Hudnall, Quality Assurance and Quality Control; Herbert A. Johnston, Analytical Services

EPS Analytical Services

5360 I-55 North • Jackson, MS 39211 • Telephone (601) 956-1400 • FAX (601) 956-2365

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 10/17/90 COLLECTED BY: CLIENT REPORT NO.: 16186 PAGE NO.: 3

LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS. RECEIPT DATE: 09/27/90 PROJECT NO.:

ANALYTE	UNITS	LABORATORY RESULTS				ANALYSIS INFORMATION			BATCH QUALITY CONTROL		
		REGULATORY LIMIT				ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE % DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		20676.00									
Hexachlor-1,3-Butadiene, TCLP Leachable	mg/l	<0.01				SCP	10/07/90	13:00	0.125	102	3.9
Hexachlorobenzene, TCLP Leachable	mg/l	<0.00002				SCP	10/08/90	13:00	2.5	40	0
Hexachloroethane, TCLP Leachable	mg/l	<0.01				SCP	10/07/90	13:00	0.125	102	3.9
Heptachlor Epoxide, TCLP Leachable	mg/l	<0.00002				SCP	10/08/90	13:00	2.5	40	0
Mercury, TCLP Leachable	mg/l	<0.01				BSC	10/02/90	13:00	0.005	102	0
Heptachlor, TCLP Leachable	mg/l	<0.00002				SCP	10/08/90	13:00	2.5	40	0
Lindane, TCLP Leachable	mg/l	<0.00002				SCP	10/08/90	13:00	2.5	40	0
m-Cresol, TCLP Leachable	mg/l	<0.01				SCP	10/07/90	13:00	0.125	102	3.9
Methyl Ethyl Ketone, TCLP Leachable	mg/l	<0.01				SCP	10/11/90	08:44	1000	107	6.7

SUPPLEMENTARY INFORMATION:

Analyses conducted in accordance with 40 CFR, Part 261, March 1990, "Test Methods for Evaluating Solid WAste" (SW-846).

SAMPLE DESCRIPTION:

20676.00 NORTH POND BOTTOM SAMPLE

COLLECTION DATE/TIME:

09/26/90 09/26/90 UNK

CERTIFICATION:

Ray Hudnall

Quality Assurance and Quality Control

Herbert A. Johnston

Analytical Services

EPS **Analytical Services**

5360 I-55 North • Jackson, MS 39211 • Telephone (601) 956-1400 • FAX (601) 956-2365

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 10/17/90 COLLECTED BY: CLIENT REPORT NO.: 16186 PAGE NO.: 4
LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS. RECEIPT DATE: 09/27/90 PROJECT NO.:

ANALYTE	UNITS	LABORATORY RESULTS / REGULATORY LIMIT	ANALYSIS INFORMATION: ANALYST	DATE	TIME	BATCH QUALITY CONTROL: SPIKE VALUE	% RECOVERY	RELATIVE % DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		20676.00						
Methoxychlor, TCLP Leachable	mg/l	<0.00002	SCP	10/08/90	13:00	2.5	40	0
Nitrobenzene, TCLP Leachable	mg/l	<0.01	SCP	10/07/90	13:00	0.125	102	3.9
o-Cresol, TCLP Leachable	mg/l	<0.01	SCP	10/07/90	13:00	0.125	102	3.9
Lead, TCLP Leachable	mg/l	<0.1	BSC	10/01/90	13:30	0.200	100	0
Tetrachloroethylene, TCLP Leachable	mg/l	<0.001	SCP	10/11/90	08:24	0.02	113	0
p-Cresol, TCLP Leachable	mg/l	<0.01	SCP	10/07/90	13:00	0.125	102	3.9
1,4-Dichlorobenzene, TCLP Leachable	mg/l	<0.001	SCP	10/11/90	08:24	0.02	113	0
Pentachlorophenol, TCLP Leachable	mg/l	<0.01	SCP	10/07/90	13:00	1.0	111	0
Pyridine, TCLP Leachable	mg/l	<0.01	SCP	10/07/90	13:00	0.125	102	3.9

SUPPLEMENTARY INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, March 1990, "Test Methods for Evaluating Solid WAste" (SW-846).

SAMPLE DESCRIPTION:
20676.00 NORTH POND BOTTOM SAMPLE

COLLECTION DATE/TIME:
09/26/90 09/26/90 UNK

CERTIFICATION:

Ray Hudnall
Quality Assurance and Quality Control

Herbert A. Johnston
Analytical Services

EPS Analytical Services
5360 I-55 North • Jackson, MS 39211 • Telephone (601) 956-1400 • FAX (601) 956-2365

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 10/17/90
LOCATION: VICKSBURG, MS 39180
PROJECT LOCATION: VICKSBURG, MS.
COLLECTED BY: CLIENT
RECEIPT DATE: 09/27/90
REPORT NO.: 16186
PROJECT NO.:
PAGE NO.: [illegible]

ANALYTE	UNITS	LABORATORY RESULTS / REGULATORY LIMIT				ANALYSIS INFORMATION			BATCH QUALITY CONTROL		
						ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE % DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		[illegible]676.00									
Selenium, TCLP Leachable	mg/l	<0.3				BSC	10/01/90	23:30	0.200	92	0
Si[illegible]x, TCLP Leachable	mg/l	<0.01				SCP	10/10/90	11:00	0.1	54	0
Trichloroethylene, TCLP Leachable	mg/l	<0.001				SCP	10/11/90	08:24	0.02	113	0
Toxic Characteristic Leaching Procedure	NA	YES				BSC	09/30/90	14:00	NA	NA	NA
Toxaphene, TCLP Leachable	mg/l	<0.00002				SCP	10/08/90	13:00	2.5	40	0
Vinyl Chloride, TCLP Leachable	mg/l	<0.001				SCP	10/11/90	08:24	0.02	113	0

S[illegible]PLEMENTARY INFORMATION:
[illegible]lyses conducted in accordance with 40 CFR, Part 261, March 1990, "Test Methods for Evaluating Solid WAste" [illegible]-846).

SAMPLE DESCRIPTION:
20676.00 NORTH POND BOTTOM SAMPLE

COLLECTION DATE/TIME:
09/26/90 09/26/90 UNK

CERTIFICATION:

Ray Hudnall
Quality Assurance and Quality Control

Herbert R. Johnston
Analytical Services

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

RECEIVED
MAY 1? 1990
Dept. of Environmental Quality
Bureau of Pollution Control

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 850 518 317

Mr. Toby Cook
Environmental Engineer
Mississippi Department of Environmental Quality
Bureau of Pollution Control
2380 Highway 80 West
Jackson, MS 39204

May 8, 1990

Re: Cedar Chemical Corporation
South Pond Closure Project

Dear Mr. Cook:

As you requested in your letter of March 27, 1990, Cedar has sampled and analyzed the sludges removed from the South Pond using the Toxicity-Characteristic Leaching Procedure. The results of the analysis are attached.

A diagram of the SWCA is attached and shows the location of the samples which were composited for analysis. Each location was sampled at a depth of six to eight inches beneath the surface.

If there are any questions concerning this matter, please contact me.

Sincerely,

Steven T. Boswell
Director of Env. Affairs

STB: pc

xc: Mr. Ahlers
Mr. Madsen

DIVISION OF SOLID WASTE
REVIEWED BY TC
DATE 5/17/91
COMMENTS Copy sent to EPA

EPS Analytical Services
5360 I-55 North • Jackson, MS 39211 • Telephone (601) 956-1400 • FAX (601) 956-2365

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 04/27/90 | COLLECTED BY: EPS-TC | REPORT NO.: 13093 | PAGE NO.: 1
LOCATION: VICKSBURG, MS 39180 | PROJECT LOCATION: VICKSBURG, MS. | RECEIPT DATE: 04/05/90 | PROJECT NO.:

ANALYTE	UNITS	LABORATORY RESULTS / REGULATORY LIMIT				ANALYSIS INFORMATION			BATCH QUALITY CONTROL		
						ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE % DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		16949.00									
2,4-D, TCLP Leachable	mg/l	<0.1				SCP	04/25/90	11:00	NA	NA	NA
Halogenated Volatiles, TCLP Leachable	mg/l	<5				SCP	04/26/90	10:36	40	90	NA
Aromatic Volatiles, TCLP Leachable	mg/l	<5				SCP	04/26/90	10:36	40	90	NA
8080 Pesticides, TCLP Leachable	mg/l	<0.1				SCP	04/25/90	09:30	NA	NA	NA
8270 Semi Volatiles, TCLP Leachable	mg/l	<0.01				SCP	04/25/90	10:00	0.24	116	5.1
Silver, TCLP Leachable	mg/l	0.02				BSC	04/12/90	10:50	0.40	102	0
Arsenic, TCLP Leachable	mg/l	<0.3				BSC	04/10/90	21:00	0.200	104	0
Barium, TCLP Leachable	mg/l	2.1				BSC	04/16/90	07:00	0.200	92	0
Cadmium, TCLP Leachable	mg/l	0.03				BSC	04/17/90	10:00	0.40	95	0

SUPPLEMENTARY INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

SAMPLE DESCRIPTION:
16949.00 SPECIAL SOIL SAMPLE

COLLECTION DATE/TIME:
04/05/90 04/05/90 11:07

CERTIFICATION:

John Broussard
Quality Assurance and Quality Control

Herbert A. Johnston
Analytical Services

This report applies only to the sample(s) analyzed. The liability of the laboratory is limited to the amount paid for the report by the client. The client assumes all liability for the further distribution of this report or its content and by making such distribution agrees to hold the laboratory harmless against

EPS Analytical Services
5360 I-55 North • Jackson, MS 39211 • Telephone (601) 956-1400 • FAX (601) 956-2365

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 04/27/90 COLLECTED BY: EPS-TC REPORT NO.: 13093 PAGE NO.: 2
LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS. RECEIPT DATE: 04/05/90 PROJECT NO.:

ANALYTE	UNITS	LABORATORY RESULTS				ANALYSIS INFORMATION			BATCH QUALITY CONTROL		
		REGULATORY LIMIT				ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE % DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		16949.00									
Chromium, TCLP Leachable	mg/l	0.26				BSC	04/16/90	13:00	1.00	97	0
Hexavalent Chromium, TCLP Leachable	mg/l	0.06				BSC	04/16/90	13:00	1.00	97	0
Mercury, TCLP Leachable	mg/l	<0.01				BSC	04/11/90	08:30	0.005	104	0
Lead, TCLP Leachable	mg/l	<0.1				BSC	04/16/90	16:00	0.200	98	0
Selenium, TCLP Leachable	mg/l	<0.3				BSC	04/10/90	23:30	0.200	90	25
Silvex, TCLP Leachable	mg/l	<0.1				SCP	04/25/90	11:00	NA	NA	NA
Toxic Characteristic Leaching Procedure	NA	YES				TCT	04/09/90	12:00	NA	NA	NA

SUPPLEMENTARY INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

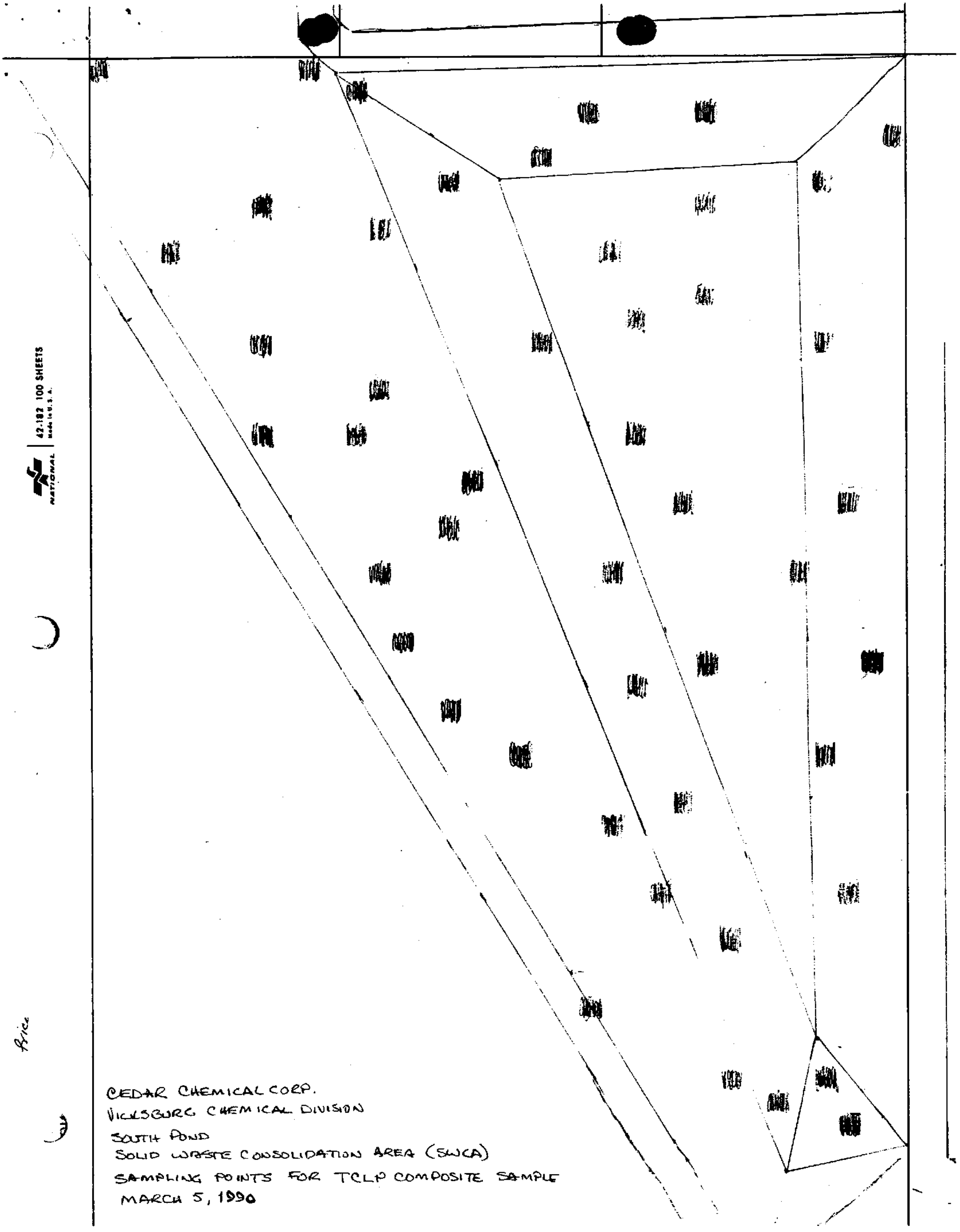
SAMPLE DESCRIPTION:
16949.00 SPECIAL SOIL SAMPLE

COLLECTION DATE/TIME:
04/05/90 04/05/90 11:07

CERTIFICATION:

Quality Assurance and Quality Control

Analytical Services



CEDAR CHEMICAL CORP.
VICKSBURG CHEMICAL DIVISION
SOUTH POND
SOLID WASTE CONSOLIDATION AREA (SWCA)
SAMPLING POINTS FOR TCLP COMPOSITE SAMPLE
MARCH 5, 1990

Rice

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

RECEIVED
MAY 18 1990
Dept. of Environmental Quality
Bureau of Pollution Control

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 850 518 320

Mr. Toby Cook
Environmental Engineer
Mississippi Department of Environmental Quality
Bureau of Pollution Control
2380 Highway 80 West
Jackson, MS 39204

May 16, 1990

Re: Cedar Chemical Corporation
South Pond Closure Project

Dear Mr. Cook:

As we discussed by telephone, attached is a letter from Mr. John Broussard of Environmental Protection Systems in reference to the TCLP analysis of pond sediment recently performed.

If there are any questions concerning this matter, please contact me.

Sincerely,

Steven T. Boswell

Steven T. Boswell
Director of Env. Affairs

STB: pc

xc: Mr. Ahlers
Mr. Madsen

EPS Analytical Services

May 11, 1990

Mr. Steve Boswell
Vicksburg Chemical
Rifle Range Road
Vicksburg, MS 39180

Dear Mr. Boswell:

On the sample we analyzed for TCLP parameters, EPS sample # 16949 and report # 13093, our data system did not breakdown the organic parameters by compound. The following organic compounds were analyzed and found to be less than detection limit for that sample:

Benzene
Carbon Tetrachloride
Chlordane
Chlorobenzene
Chloroform
o-Cresol
p-Cresol
m-Cresol
Cresol
2,4-D
1,4-Dichlorobenzene
1,2-Dichlorobenzene
2,4-Dinitrotoluene
Endrin
Heptachlor (and its hydroxide)
Hexachlorobutadiene
Hexachloroethane
Lindane
Methoxychlor
Methyl ehtyl ketone
Nitrobenzene
Pentachlorophenol
Pyridine
Tetrachloroethylene
Toxaphene
Trichloroethylene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-TP Silvex
Vinyl chloride
Hexachlorobenzene

Please accept our apology for this inconvenience. If you need further information, or you have any questions, please do not hesitate to contact me.

Sincerely,

John Broussard

John Broussard

JB/cm

5360 I-55 North, Jackson, Mississippi 39211 (601) 956-1400 FAX (601) 956-2365

FILE COPY

STATE OF MISSISSIPPI

DEPARTMENT OF ENVIRONMENTAL QUALITY

RAY MABUS
GOVERNOR

March 27, 1990

Mr. Steve Boswell
Director of Environmental Affairs
Cedar Chemical Corporation
P.O. Box 3
Vicksburg, Mississippi 39181

Dear Mr. Boswell:

Re: Cedar Chemical Corporation
South Pond Closure Project

As we discussed in our telecon of March 26, 1990, the Bureau requests that the sludge removed from your wastewater pond be sampled and tested for the toxicity characteristic constituents, using the Toxicity-Characteristic Leaching Procedure.

A copy of the toxicity characteristic constituent list is enclosed. If you have any questions, please contact me at (601) 961-5171.

Sincerely,

Toby M. Cook

Toby M. Cook, P.E.
Hazardous Waste Division

TMC-40:lr
Enclosure

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P.O. BOX 3
VICKSBURG, MS 39181
(601) 636-1231

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 850 518 309

RECEIVED
MAR 2_ 1990
Dept. of Environmental Quality
Bureau of Pollution Control

Mr. Toby Cook
Environmental Engineer
Mississippi Department of Environmental Quality
Bureau of Pollution Control
2380 Highway 80 West
Jackson, MS 39204

March 23, 1990

Re: Cedar Chemical Corporation
South Pond Closure Project

Dear Mr. Cook:

Please find enclosed copies of the sediment analyses for Area "A" of the South Pond at the Cedar Chemical Vicksburg Plant. The sediments were analyzed for total constituents and for the extractable amounts using the Extraction Procedure described in 40 CFR 261, Appendix II.

If there are any questions concerning this matter, please contact me.

Sincerely,

Steven T. Boswell

Steven T. Boswell
Director of Env. Affairs

STB: pc

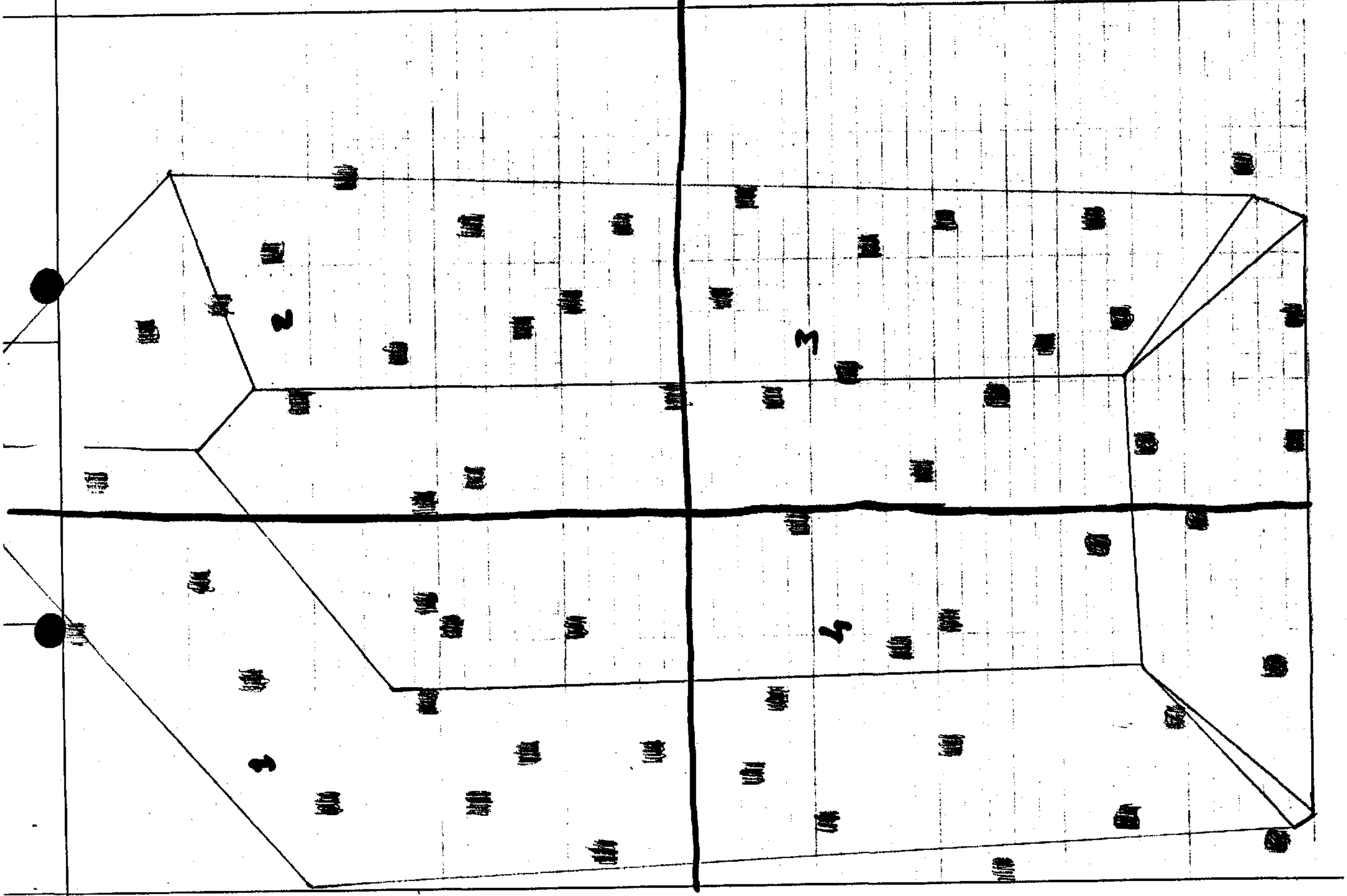
xc: Mr. Ahlers
Mr. Madsen

DIVISION OF SOLID WASTE
REVIEWED BY TC
DATE 3/27/90
COMMENTS

IMPOUNDMENT A
SAMPLING PLAN

ALL LOCATIONS TO USE SAMPLER
USING A 3/4" SOIL SAMPLER TO A DEPTH OF 12"

EACH ZONE TO BE COMPOSITED TO FILL A ONE LITER CONTAINER



From: American Laboratories and
Research Services, Inc.
P.O. Box 15609
Hattiesburg, MS 39402-5609
601-264-9320

Date: December 30, 1990

To: Mr. Steven Boswell
Cedar Chemical Company
P.O. Box 3
Vicksburg, MS 39180

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AA02377

Sample location: VICKS Cedar Impoundment A - Area 1

Collected by: S BOSWELL Collection date: 10/18/89 Time:

Laboratory submittal date: 10/20/89 Time: 19:00

Received by: RLH Validated by: RLH

Parameter: Selected Pesticides
Method reference: SW846 8080
Result: see appended report
Date started: 11/05/89 Date finished: 11/22/89
Time started: 03:46 Analyst: RLH

Parameter: Arsenic
Method reference: EPA 206.2
Result: 22 mg/Kg MDL or sensitivity: .002
Date started: 10/30/89 Date finished: 10/30/89
Time started: 14:00 Analyst: SPF

Parameter: Selected Pesticides by EP TOX
Method reference: EPA
Result: see appended report
Date started: 11/05/89 Date finished: 11/22/89
Time started: 01:27 Analyst: RLH

Mr. Steven Boswell
Page: 2
December 30, 1990

Sample I.D. AA02377 (continued)

Parameter: Arsenic by EP TOX
Method reference:
Result: .027 mg/L
Date started: 10/30/89
Time started: 14:00

MDL or sensitivity: .002
Date finished: 10/30/89
Analyst: SPF

Data for Selected Pesticides ug/Kg

Component Name	Concentration	Component MDL
Atrazine, total	380000	100
Dinoseb, total	95000	100
Methyl Parathion, total	Not Det	90
Bladex, total	32000	100
Toxaphene, total	Not Det	200

Data for Selected Pesticides by EP TOX ug/L

Component Name	Concentration	Component MDL
Atrazine, EPTOX	36000	20
Dinoseb, EPTOX	12000	20
Methyl Parathion, EPTOX	Not Det	20
Bladex, EPTOX	1500	20
Toxaphene, EPTOX	Not Det	60

Comments:
Reference Lab Report No. R923.

If there are any questions regarding this data, please call.

Ricky L. Hatton, Ph.D.
Vice President

Reviewed By: James W. Pinson, Ph.D.
President

From: American Laboratories and
Research Services, Inc.
P.O. Box 15609
Hattiesburg, MS 39402-5609
601-264-9320

Date: December 30, 1990

To: Mr. Steven Boswell
Cedar Chemical Company
P.O. Box 3
Vicksburg, MS 39180

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AA02378

Sample location: VICKS   Cedar Impoundment A - Area 2

Collected by: S BOSWELL   Collection date: 10/18/89 Time:

Laboratory submittal date: 10/20/89 Time: 19:00

Received by: RLH   Validated by: RLH

Parameter: Selected Pesticides
Method reference: SW846 8080
Result: see appended report
Date started: 11/05/89
Time started: 04:21
Date finished: 12/22/89
Analyst: RLH

Parameter: Arsenic
Method reference: EPA 206.2
Result: 27 mg/Kg
Date started: 10/30/89
Time started: 14:00
MDL or sensitivity: .002
Date finished: 10/30/89
Analyst: SPF

Parameter: Selected Pesticides by EP TOX
Method reference: EPA
Result: see appended report
Date started: 11/05/89
Time started: 02:02
Date finished: 12/22/89
Analyst: RLH

Mr. Steven Boswell
Page: 2
December 30, 1990

Sample I.D. AA02378 (continued)

Parameter: Arsenic by EP TOX
Method reference:
Result: .093 mg/L
Date started: 10/30/89
Time started: 14:00

MDL or sensitivity: .002
Date finished: 10/30/89
Analyst: SPF

Data for Selected Pesticides ug/Kg

Component Name	Concentration	Component MDL
Atrazine, total	520000	100
Dinoseb, total	11000	100
Methyl Parathion, total	100	90
Bladex, total	5800	100
Toxaphene, total	Not Det	200

Data for Selected Pesticides by EP TOX ug/L

Component Name	Concentration	Component MDL
Atrazine, EPTOX	81000	20
Dinoseb, EPTOX	1300	20
Methyl Parathion, EPTOX	Not Det	20
Bladex, EPTOX	430	20
Toxaphene, EPTOX	Not Det	60

Comments:
Reference Lab Report No. R923.

If there are any questions regarding this data, please call.

Ricky L. Hatton, Ph.D.
Vice President

Reviewed By: James W. Pinson, Ph.D.
President

James W. Pinson

From: American Laboratories and
Research Services, Inc.
P.O. Box 15609
Hattiesburg, MS 39402-5609
601-264-9320

Date: December 30, 1990

To: Mr. Steven Boswell
Cedar Chemical Company
P.O. Box 3
Vicksburg, MS 39180

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AA02379

Sample location: VICKS Cedar Impoundment A - Area 3

Collected by: S BOSWELL Collection date: 10/18/89 Time:

Laboratory submittal date: 10/20/89 Time: 19:00

Received by: RLH Validated by: RLH

Parameter: Selected Pesticides
Method reference: SW846 8080
Result: see appended report
Date started: 11/05/89
Time started: 04:56
Date finished: 12/22/89
Analyst: RLH

Parameter: Arsenic
Method reference: EPA 206.2
Result: 16 mg/Kg
Date started: 10/30/89
Time started: 14:00
MDL or sensitivity: .002
Date finished: 10/30/89
Analyst: SPF

Parameter: Selected Pesticides by EP TOX
Method reference: EPA
Result: see appended report
Date started: 11/05/89
Time started: 02:02
Date finished: 12/22/89
Analyst: RLH

Mr. Steven Boswell
Page: 2
December 30, 1990

Sample I.D. AA02379 (continued)

Parameter: Arsenic by EP TOX
Method reference:
Result: .065 mg/L
Date started: 10/30/89
Time started: 14:00

MDL or sensitivity: .002
Date finished: 10/30/89
Analyst: SPF

Data for Selected Pesticides ug/Kg

Component Name	Concentration	Component MDL
Atrazine, total	480000	100
Dinoseb, total	1500	100
Methyl Parathion, total	Not Det	90
Bladex, total	3100	100
Toxaphene, total	Not Det	200

Data for Selected Pesticides by EP TOX ug/L

Component Name	Concentration	Component MDL
Atrazine, EPTOX	86000	20
Dinoseb, EPTOX	300	20
Methyl Parathion, EPTOX	Not Det	20
Bladex, EPTOX	600	20
Toxaphene, EPTOX	Not Det	60

Comments:
Reference Lab Report No. R923.

If there are any questions regarding this data, please call.

Ricky L. Hatton, Ph.D.
Vice President

Reviewed By: James W. Pinson, Ph.D.
President

From: American Laboratories and
Research Services, Inc.
P.O. Box 15609
Hattiesburg, MS 39402-5609
601-264-9320

Date: December 30, 1990

To: Mr. Steven Boswell
Cedar Chemical Company
P.O. Box 3
Vicksburg, MS 39180

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AA02380

Sample location: VICKS Cedar Impoundment A - Area 4

Collected by: S BOSWELL Collection date: 10/18/89 Time:

Laboratory submittal date: 10/20/89 Time: 19:00

Received by: RLH Validated by: RLH

Parameter: Selected Pesticides
Method reference: SW846 8080
Result: see appended report
Date started: 11/05/89 Date finished: 12/22/89
Time started: 05:30 Analyst: RLH

Parameter: Arsenic
Method reference: EPA 206.2
Result: 18 mg/Kg MDL or sensitivity: .002
Date started: 10/30/89 Date finished: 10/30/89
Time started: 14:00 Analyst: SPF

Parameter: Selected Pesticides by EP TOX
Method reference: EPA
Result: see appended report
Date started: 11/05/89 Date finished: 12/22/89
Time started: 03:12 Analyst: RLH

Mr. Steven Boswell
Page: 2
December 30, 1990

Sample I.D. AA02380 (continued)

Parameter: Arsenic by EP TOX
Method reference:
Result: .041 mg/L
Date started: 10/30/89
Time started: 14:00

MDL or sensitivity: .002
Date finished: 10/30/89
Analyst: SPF

Data for Selected Pesticides ug/Kg

Component Name	Concentration	Component MDL
Atrazine, total	1200000	100
Dinoseb, total	22000	100
Methyl Parathion, total	190	90
Bladex, total	59000	100
Toxaphene, total	Not Det	200

Data for Selected Pesticides by EP TOX ug/L

Component Name	Concentration	Component MDL
Atrazine, EPTOX	66000	20
Dinoseb, EPTOX	2200	20
Methyl Parathion, EPTOX	Not Det	20
Bladex, EPTOX	4400	20
Toxaphene, EPTOX	Not Det	60

Comments:
Reference Lab Report No. R923.

If there are any questions regarding this data, please call.

Ricky L. Hatton
Ricky L. Hatton, Ph.D.
Vice President

James W. Pinson
Reviewed By: James W. Pinson, Ph.D.
President

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1896-1985

CHARLES METCALF CRUMP
JERRE G. DUZANE
JOHN B. MAXWELL, JR.
ALLEN T. MALONE
PHILIP G. KAMINSKY
ROBERT L. DINKELSPIEL
MICHAEL E. HEWGLEY
JAMES F. RUSSELL
JOHN L. RYDER
THOMAS R. BUCKNER
MELODY W. OLIVER
WILLIAM B. MASON, JR.
STEVEN N. DOUGLASS
RANDY S. GARDNER

SAMUEL RUBENSTEIN
OF COUNSEL

LAW OFFICES
APPERSON, CRUMP, DUZANE & MAXWELL
SUITE 2110
ONE COMMERCE SQUARE
MEMPHIS, TENNESSEE 38103
901/525-1711

TELECOPY 901/521-0789

EAST OFFICE
SUITE 100
KIRBY CENTRE
1755 KIRBY PARKWAY
MEMPHIS, TENNESSEE 38119
901/756-6300
TELECOPY 901/757-1296

September 8, 1989

RECEIVED
SEP 11 1989
Dept. of Natural Resources
Bureau of Pollution Control

Mr. Sam Mabry
Director
Division of Hazardous Waste
Mississippi Department of
Environmental Quality
P. O. Box 10385
Jackson, Mississippi 39209

Re: Cedar Chemical Corporation/Vicksburg Plant

Dear Sam:

Since you were copied on a letter dated August 25, 1989, from Patrick Tobin of EPA, Region IV, to Steve Boswell at the Vicksburg Plant, I am enclosing for your file all of the recent correspondence between Cedar and EPA relative to the subject information request.

Sincerely yours,

Allen T. Malone

ATM:jw

Enclosures

cc: Mr. Steve Boswell

DIVISION OF SOLID WASTE
REVIEWED BY TC
DATE 9/18/89
COMMENTS

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1896-1965

CHARLES METCALF CRUMP
JERRE G. DUZANE
JOHN B. MAXWELL, JR.
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EAST OFFICE
SUITE 100
KIRBY CENTRE
1755 KIRBY PARKWAY
MEMPHIS, TENNESSEE 38119
901/756-6300
TELECOPY 901/757-1296

September 8, 1989

Ms. Jeaneanne Gettle
Environmental Engineer
Waste Compliance Section
United States Environmental
Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Cedar Chemical Corporation
July 18 and August 25, 1989
Requests for Information

Dear Ms. Gettle:

Pursuant to our telephone conversation on September 6, 1989, I enclose herewith the following documents:

1. Construction Agreement between Vertac Chemical and Buford Construction dated September 15, 1983.

2. Letter from Gee & Strickland, Inc. to Bob James, Jr., P.E. dated October 25, 1983.

3. Letter from Robert W. James, Jr., P.E. to Charles H. Estes, III, P.E. dated November 4, 1983.

4. A copy of the "As Built" Drawing certified by Gee & Strickland, referred to in each of the above letters.

As indicated in my letter to Allan Antley of September 1, 1989, we did not consider information contained in these documents to be responsive to the referenced information request. Nevertheless, if there are other documents relating to the closure of the inactive disposal area in 1983 which might be useful to you, we will be happy to search Cedar's files and records and provide them to you if they can be located. As we discussed, our review of the files has indicated no information regarding the materials which were disposed of in the old landfill area prior to 1979 (the year when the previous owner discontinued use of the landfill) other than the documents which were enclosed with Steve Boswell's letter to Allan Antley of August 3, 1989.

As stated in my recent letter to Mr. Antley, Cedar is anxious to cooperate with the agency in connection with any matters pertaining to the Vicksburg Plant. If there are additional questions concerning your recent information request, I hope you will contact me by telephone. (My copy of the Agency's letter of August 25, 1989 has still not arrived, although it was received at the Plant on September 1, 1989, and a photocopy of the letter which apparently was resent, was received at the Plant today.) I have always felt that an open line of communication between your Agency and Cedar would make your job as well as mine and Steve's more efficient and perhaps more pleasant.

Sincerely yours,

Allen T. Malone

ATM:jw

Enclosures

cc: Allan E. Antley, Chief
Waste Compliance Section

cc: Mr. Sam Mabry
Mississippi Department of
Environmental Quality

cc: Mr. Steve Boswell
Director of Environmental Affairs
Cedar Chemical Corporation
Vicksburg Plant

GRADING AND CAPPING OF THE INACTIVE DISPOSAL AREA AND SURFACE IMPOUNDMENT DIKE IMPROVEMENTS

VERTAC CHEMICAL CORPORATION

VICKSBURG, MS 39180

GIL & STRICKLAND, INC.

Vicksburg, Mississippi

Engineers • Surveyors • Planners • Material Testing

GRADING AND CAPPING OF THE INACTIVE DISPOSAL AREA AND SURFACE IMPOUNDMENT DIKE IMPROVEMENTS

VERTAC CHEMICAL CORPORATION
VICKSBURG, MS 39180

OWNER:

VERTAC CHEMICAL CORPORATION
5100 POPLAR STREET
MEMPHIS, TN 38137

ENGINEERS:

MCI/CONSULTING ENGINEERS
NASHVILLE, TN

GEE & STRICKLAND, INC.
1104 OPENWOOD STREET
VICKSBURG, MS 39180

AUGUST 26, 1983

INFORMATION FOR BIDDERS

BIDS will be received by Vertac Chemical Corporation (herein called the "OWNER"), at 1104 Openwood, Vicksburg, MS until 2:00 p.m. 9/7, 19 83, and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to Vertac Chemical Corporation at 1104 Openwood. Each sealed envelope containing a BID must be plainly marked on the outside as BID for Inactive disposal area and dike improvement and the envelope should bear on the outside the name of the BIDDER, his address, his license number if applicable and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at 1104 Openwood, Vicksburg, Mississippi

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID bond payable to the OWNER for five percent of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A performance BOND and a payment BOND, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to his BID.

Further, the BIDDER agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in the SUPPLEMENTAL GENERAL CONDITIONS.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when requested to do so by the OWNER.

Inspection trips for prospective BIDDERS will leave from the office of the

Engineer ______________________________ at by appointment

The ENGINEER is Gee & Strickland, Inc. ______________ His address

is 1104 Openwood, Vicksburg, Mississippi

NOTICE OF AWARD

To: Buford Construction Company

Route 1, Box 430

Vicksburg, MS 39180

PROJECT Description: Grading and Capping of the Inactive Disposal Area and Surface Impoundment Dike Improvements, Vertac Chemical Corporation.

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated August 26, 19 83, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of $ 204,750 .

You are required by the Information for Bidders to execute the Agreement and furnish the required ~~CONTRACTOR'S Performance BOND, Payment BOND~~ and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this 14th day of September, 19 83.

Vertac Chemical Corporation
Owner

By [signature]

Title General Manager Vicksburg Plant

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by Buford Construction Company

this the 14TH day of SEPTEMBER, 19 83

By President

Title [signature]

BID

Proposal of Buford Construction Company (hereinafter called "BIDDER"), organized and existing under the laws of the State of Mississippi doing business as Corporation*.

To the Vertac Chemical Company (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of grading and capping the inactive disposal area and surface Impoundment Dike Improvements. in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within sixty (60) consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of $100.00 for each consecutive calendar day thereafter as provided in Section 15 of the General Conditions.

BIDDER acknowledges receipt of the following ADDENDUM:

None.

*Insert "a corporation", "a partnership", or "an individual" as applicable.

NO.	ITEM	UNIT	UNIT PRICE	AMOUNT	TOTAL PRICE
1.	Grading and capping of Inactive Disposal Area			Lump sum	$70,725.00
2.	Surface Impoundment Dike Improvements			Lump sum	$134,025.00

TOTAL OF BID $204,750.00

LUMP SUM PRICE (if applicable) .... $

Respectfully submitted:

B.P. Buford
Signature

Route 1, Box 430
Vicksburg, MS 39180
Address

President
Title

September 6, 1983
Date

License Number (if applicable)

(SEAL—if BID is by a corporation)

Attest

(F) General Conditions

(G) SUPPLEMENTAL GENERAL CONDITIONS

(H) XXXXXXXXXXXX - Deleted

(I) XXXXXXXXXXXXXXX - Deleted

(J) NOTICE OF AWARD

(K) NOTICE TO PROCEED

(L) CHANGE ORDER

(M) DRAWINGS prepared by MCI numbered 1 through 4 and dated Jan 24, 19 83 and by MCI numbered 1 through 5 dated 8/8/83.

(N) SPECIFICATIONS prepared or issued by Gee & Strickland, Inc. and MCI, dated ________, 19________

(O) ADDENDA:

No. ________, dated ________, 19________

No. ________, dated ________, 19________

No. ________, dated ________, 19________

No. ________, dated ________, 19________

No. ________, dated ________, 19________

No. ________, dated ________, 19________

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in (Three) each of which shall be deemed an original on the date first above written.
(Number of Copies)

AGREEMENT

THIS AGREEMENT, made this 14th day of September, 1983, by and between Vertac Chemical Corporation, hereinafter called "OWNER"
(Name of Owner), (an Individual)

and Buford Construction Company doing business as (~~an individual~~) or (~~a partnership~~) or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of Grading and capping of Inactive Disposal Area and Surface Impoundment Dike Improvements.

2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 10 calendar days after the date of the NOTICE TO PROCEED and will complete the same within 60 calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of $ 204,750.00, or as shown in the BID schedule.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

(A) Advertisement For BIDS

(B) Information For BIDDERS

(C) BID

(D) XXXXXXXX - Deleted

(E) Agreement

OWNER:

Vertac Chemical Corporation

BY [signature]

Name F. L. Ahlers
(Please Type)

Title General Manager
Vicksburg Plant

(SEAL)

ATTEST:

[signature]

Name ROBERT W JAMES JR PE
(Please Type)

Title

CONTRACTOR:

Buford Construction Company

BY B.P. Buford

Name B. P. Buford
(Please Type)
President

Address Route 1, Box 430
Vicksburg, MS 39180

(SEAL)

ATTEST:

[signature]

Name PHILIP. C. GEE P.E.
(Please Type)

GENERAL CONDITIONS

1. *DEFINITIONS*

1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.2 ADDENDA—Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.

1.3 BID—The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER—Any person, firm or corporation submitting a BID for the WORK.

1.5 BONDS—Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER—A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS—The contract, including Advertisement For Bids, Information For Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE—The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME—The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR—The person, firm or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS—The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12 ENGINEER—The person, firm or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER—A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD—The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED—Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

1.16 OWNER—A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.

1.17 PROJECT—The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE—The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS—All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS—A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR—An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22 SUBSTANTIAL COMPLETION—That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS—

CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. *INSPECTION AND TESTING*

7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the engineer or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.

7.7 If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.

7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. *SUBSTITUTIONS*

8.1 Whenever a material, article or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9. *PATENTS*

9.1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

10. *SURVEYS, PERMITS, REGULATIONS*

10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR

Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws.

1.24 SUPPLIER—Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK—All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE—Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the WORK.

2. *ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS*

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. *SCHEDULES, REPORTS AND RECORDS*

3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:

3.2.1. The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

4. *DRAWINGS AND SPECIFICATIONS*

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. *SHOP DRAWINGS*

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6. *MATERIALS, SERVICES AND FACILITIES*

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

6.5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the observes that the CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11. *PROTECTION OF WORK, PROPERTY AND PERSONS*

11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. *SUPERVISION BY CONTRACTOR*

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13. *CHANGES IN THE WORK*

13.1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14. *CHANGES IN CONTRACT PRICE*

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

(a) Unit prices previously approved.

(b) An agreed lump sum.

(c) The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the WORK to cover the cost of general overhead and profit.

15. *TIME FOR COMPLETION AND LIQUIDATED DAMAGES*

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To any preference, priority or allocation cuted and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. *PAYMENTS TO CONTRACTOR*

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER's title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. The OWNER at any time, however, after fifty (50) percent of the WORK has been completed, if he finds that satisfactory progress is being made, shall reduce retainage to five (5%) percent on the current and remaining estimates. When the WORK is substantially complete (operational or beneficial occupancy), the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made *in full*, including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

19.3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

19.6 The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out of the lawful demands of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment *interest* at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

order duly issued by the OWNER.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. *CORRECTION OF WORK*

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. *SUBSURFACE CONDITIONS*

17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE; provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. *SUSPENSION OF WORK, TERMINATION AND DELAY*

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the Contract. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK exe-

20. *ACCEPTANCE OF FINAL PAYMENT AS RELEASE*

20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the Performance BOND and Payment BONDS.

21. *INSURANCE*

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

21.3 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified:

21.3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him. Insurance shall be written with a limit of liability of not less than $500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than $500,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $200,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the work is performed, Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

21.5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER, and the OWNER.

22. *CONTRACT SECURITY*

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance Bond and a Payment Bond in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by

ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. *LAND AND RIGHTS-OF-WAY*

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. *GUARANTY*

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

30. *ARBITRATION*

30.1 All claims, disputes and other matters in question arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making and acceptance of final payment as provided by Section 20, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.

30.2 Notice of the demand for arbitration shall be filed in writing with the other party to the CONTRACT DOCUMENTS and with the American Arbitration Association, and a copy shall be filed with the ENGINEER. Demand for arbitration shall in no event be made on any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.

30.3 The CONTRACTOR will carry on the WORK and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

31. *TAXES*

31.1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23. *ASSIGNMENTS*

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.

24. *INDEMNIFICATION*

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

25. *SEPARATE CONTRACTS*

25.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

25.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.

25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entities him to an extension of the CONTRACT TIME, he may make a claim therefor as provided in Sections 14 and 15.

26. *SUBCONTRACTING*

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

27. *ENGINEER'S AUTHORITY*

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The

Supplemental General Conditions

1. Ponds number 2 and 3 must be dewatered sufficiently that all fill material is placed "in the dry." This will not be necessary in pond 1.

2. Dikes constructed around outlet pipes and the pump station for dewatering must be removed when the work is completed.

3. Only one pond may be dewatered at a time.

4. Six borings were made on the inactive disposal area and the logs of these borings are available in Gee & Strickland's office. The contracter is responsible for the information contained in these logs.

5. There is some potential extra processing of the borrow material may be required due to excess moisture. Permission is granted by Vertac to excavate in the borrow area.

6. It is anticipated Notice to Proceed will be issued in time to begin work by October 3, 1983. The order of work shall be the dike work first, then the inactive disposal area. As long as sufficient progress is being made on the dike, additional equipment may be mobilized for the disposal area.

7. The following quantities have been provided by MCI for the dike improvements. The contractor assumes all responsibility for the use of these quantities.

a)	On site cut and fill	3,200 yd^3
b)	Haul in fill	3,000 yd^3
c)	Gravel for chimney drain	785 yd^3
d)	Rip rap	2,700 yd^3
e)	Filter cloth	60,000 ft^2
f)	Seeding	2,900 yd^2

SITE WORK

EARTHWORK

GENERAL

SCOPE OF WORK

Work consists of all stripping, grubbing, related items of demolition, excavation, fill, backfill, and grading for the entire project as shown on the drawings and/or specified herein.

GENERAL

Operations of earthwork shall be suspended at any time when satisfactory results cannot be obtained on account of rain, inclement weather or other unsatisfactory conditions of the field. Contractor shall provide and maintain area of Limits of Work with proper drainage at all times.

FIELD CONTROL

The Owner shall retain services of a testing laboratory to perform all tests required under this contract. In areas where density of fill or embankment is specified, field density tests will be performed as directed by the Engineer.

Unsatisfactory Material. If controlled fills are found to be unsatisfactory by the Testing Laboratory, material shall be removed and replaced to produce the class fill specified, and retested at the Contractor's expense.

CLEARING AND GRUBBING

Clear and grub the site of all trees, vegetation, and topsoil. This material is to be removed from the site. No disposal site is provided by the Owner unless shown on the plans.

FILLING

Fill materials shall be approved by the Engineer and shall conform to the following unless otherwise noted on the drawings.

Fill shall be free of organic matter, vegetation and debris with a liquid limit less than 30 and a plastic index less than 10.

FILL CLASSIFICATION

All fills shall be compacted to 95% ASTM D698 (Standard Proctor) unless otherwise shown on the plans.

TECHNICAL SPECIFICATIONS

FOR THE

GRADING AND CAPPING

INACTIVE DISPOSAL AREA

VERTAC CHEMICAL CORPORATION

VICKSBURG, MS 39180

GEE & STRICKLAND, INC.
1104 OPENWOOD STREET
VICKSBURG, MS 39180

EXECUTION

HAUL ROADS. The contractor shall maintain the haul roads with sufficient moisture to prevent dust becoming a nuisance to plant operations or a safety hazard.

ROUGH GRADING

Grading. Grade the entire area within .2'$\pm$, of the noted elevations.

DRAINAGE

Both temporary and permanent drainage shall be maintained during performance of the Work. Surface of unfinished fills shall be bladed smooth to a crown or grade to permit water run-off. Contractor shall control grading so as to prevent water from running into excavated areas; provide all ditching and/or pumping required to keep excavated areas free of water.

Saturation. Fill that has become saturated with water because of improper drainage shall be removed to a depth determined by the Engineer and shall be disposed of or reconditioned to conform to these Specifications.

SEEDING

After grading operations have been completed, all areas shown on the plans shall be seeded as herein specified.

LAYOUT

The Engineer will provide grade stakes at the beginning of the project and blue tops for the proposed grade and final grade as shown on the plans. The contractor shall notify the Engineer at least two working days before grade stakes are required. The contractor shall exercise reasonable care in preserving grade stakes.

QUANTITY ESTIMATES

This parcel has been cross-sectioned at 50' intervals with cut and fill volumes determined from the plans at 50' cross-sectioned intervals. These computations show 20,000 cubic yards of on-site cut and 16,500 cubic yards of on-site fill. An additional 14,000 cubic yards must be hauled from the borrow areas to provide the 18" cap shown on the plans. Both of these volumes are in-place material and volumes do not provide for any shrinkage factors. These volumes are provided for the convenience of bidders, however, the Contractor assumes all responsibility for the use of these volumes.

SITE VISIT

As noted on the plans, some changed conditions exist. The contractor is responsible to visit the site and familiarize himself with the site and haul conditions. Failure to do so will not be a basis of a change order.

PAYMENT

Payment will be made at the Lump Sum price shown on the Bid Schedule.

it unsuitable for use will not be accepted. Fertilizer shall not have been exposed to weather prior to delivery and shall be protected at the job site until use. Fertilizer used shall contain the following percentage by weight:

13% of nitrogen
13% of phosperic acid
13% of potash
or as otherwise specified herein.

MULCH

The mulching agent which is incorporated in the slury is to be approved by the Engineer.

WATERING

If soil moisture is deficient when planting, apply sufficient water for seed germination. Continue watering until a stand of grass sufficient to retard errosion is established.

INSPECTION AND ACCEPTANCE

When a sufficient stand of grass has been established to retard errosion, the Engineer will inspect the site and notify the Contractor of acceptance. Watering may be stopped at that time.

MEASUREMENT AND PAYMENT

Measurement of the area will be done by the Engineer and payment will be at the unit price in the Bid Schedule.

TECHNICAL SPECIFICATIONS
SURFACE IMPOUNDMENT DIKE IMPROVEMENTS
VERTAC CHEMICAL CORPORATION
VICKSBURG, MISSISSIPPI

Prepared by:

MCI/Consulting Engineers, Inc.
P.O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010

August 8, 1983

SEEDING

GENERAL

This section includes furnishing all materials, labor and equipment necessary to seed and produce a grass cover on the limits of work shown on the plans and specified herein.

SCOPE

The seeding shall be done by hydromulching process as performed by Mississippi Grass, Brandon, MS, or equal.

GRASS

The seed shall be of the best grade, and of known vitality, purity, and germination and shall be delivered in bags as required by law, each bag being tagged showing the percent of germination and purity of the seed, also the percent of noxious weeds and inert litter. All seed shall be free of wild onion, Canada thistle, and Johnson grass. One (1) pound of seed shall not contain more than 300 noxious seeds. No seed more than one year old will be accepted. Seeding shall be done with grasses which will germinate in the season planted, as shown in the following table and at the prescribed rates:

March 1 to Aug. 15	-Bermuda Grass at 50 lbs. per Acre.
August 15 to Nov. 15	-Annual Rye Grass at 50 lbs. per Acre.

Bermuda grass seed shall be hulled. If Annual Rye Grass is planted as necessitated by the schedule, Bermuda Grass must be overseeded and an acceptable stand established at a later date by the Contractor as a permanent cover within its permitted planting season as specified above.

In areas where the final slope is at or steeper than 2½ horizontal to 1 vertical, the areas shall be sodded with the apppropriate grasses as above.

FERTILIZERS

Commercial fertilizers shall be complete formula and shall conform to the applicable regulations and laws. It shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making

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4. GENERAL PROVISIONS

A. Lines and Grades: The fills shall be constructed to the lines and grades indicated on the drawings. Grading shall be finished with a tolerance of 0.1 foot of the grades indicated.

B. Conduct of the Work: The contractor shall maintain the site in a well-drained satisfactory condition at all times until final completion and acceptance of all work under the contract. Any approved fill material which is rendered unsuitable after being placed in the embankment and before final acceptance of the work shall be replaced by the contractor in a satisfactory manner at no additional cost to the Owner.

Throughout construction it is essential that the site be maintained in a well-drained condition. Water should not be allowed to pond or be impounded in any area, and drainage shall be controlled in a manner which will insure the quality of the work.

C. Density Tests: The grading operation will be continuously monitored by the engineer designated by the Owner or their representative hereinafter called the Engineer. During the construction of any fill, density and other tests will be conducted which may cause delays in the contractor's placing and compaction operations. The contractor shall coordinate his work with the operations of the Engineer.

5. MATERIALS

A. General: Fill shall consist of earth or rock. Materials to be stockpiled or wasted are to be specifically designated as such. Materials containing brush, roots, sod, or other deleterious materials will not be considered suitable. The suitability of the materials and their deposition shall be subject to the approval of the Engineer. Considerable drying of materials excavated within the existing dike will probably be required to allow proper compaction.

6. FILL

A. General: The suitability of all materials placed in the fill will be determined by the Engineer.

B. Definitions: The term "Fill" as used in these specifications is defined as the earth to be imported or excavated on the site and deposited in layers and compacted by rolling and/or tamping. Earth fill is considered to be organic-free soil derived from on-site excavations, or approved borrow areas.

7. PREPARATION FOR FILL PLACEMENT

A. General: All areas to have fill placed upon them will be examined by the Engineer after stripping, and any soft or otherwise deleterious materials will be removed prior to placement. No fill material shall be placed until the subgrade has been examined and approved by the Engineer.

B. Proofrolling: After stripping and prior to fill placement those areas which will have fill placed upon them shall be proofrolled with heavy, pneumatic-tired construction equipment. Any soft, unstable or otherwise unacceptable zones detected thereby, as determined by the Engineer, shall be undercut to firm soil, stabilized by compaction or otherwise compacted using heavy rollers or tracked equipment until judged stable by the Engineer.

C. Compaction Equipment: Compaction equipment shall conform to standards of the industry and shall be used as prescribed. The Contractor will furnish and have on the job the various types of compaction and grading equipment which may be required to properly consolidate the various types of materials incorporated in the fill, or which are otherwise required to prepare the site.

D. Spreading: After dumping, the material shall be spread by bulldozer or grader in approximate horizontal layers over the fill areas. Concentration of oversize material will not be permitted. If, in the opinion of the geotechnical engineer, any individual stone or stones interfere with proper and smooth compaction, they shall be removed from the lift. During the dumping and spreading processes, the contractor shall maintain at all times a force of men adequate to remove all roots and debris from all fill materials. The entire surface of any fill under construction shall be maintained in such condition that construction equipment can travel over it. Ruts in the surface of any layer shall be filled satisfactorily before compacting.

9. MOISTURE CONTROL

The materials in each layer of the fill shall contain the amount of moisture necessary to obtain the desired compaction as determined by the Engineer. Material that is too wet when placed in the fill shall be spread over the fill surface and permitted to dry, assisted by discing or harrowing, if applicable, until the moisture content is reduced to an amount within tolerable limits. When the material is too dry, the contractor will be required to sprinkle each layer of fill. Discing, or other approved methods, will be required to work the moisture into the material until a uniform distribution of moisture is obtained. Water applied on a layer of fill shall be accurately controlled in amounts so that free water will not appear on the surface during or subsequent to rolling. Should too much water be added to any part of the fill so that the material is too wet to obtain the desired compaction, the rolling and all work on that section of the fill shall be delayed until the moisture content of the material is reduced to an amount with the specified limits. If, in the opinion of the Engineer, the top or contact surface of a partial fill section becomes too wet or too dry to permit suitable bond between these surfaces and the additional fill to be placed thereon, the contractor shall loosen the wet or dried material by scarifying or discing to such depths as may be directed, shall dampen or dry the loosened material to an acceptable moisture content, and shall then compact this layer in accordance with the applicable requirements to densities comparable to the underlying fill.

Drainage and Rockfill

SECTION IV

1. SCOPE

The work covered by this section consists of furnishing all plant, labor, equipment, and performing all operations in connection with the construction and placing of the subsurface drains and rock toe in accordance with the Drawings and these specifications.

2. TOE DRAIN

Toe drains shall be installed at the base of the slope as shown by the drawing. The rock shall be reasonably well graded with a maximum rock dimension of 12 inches. The rock shall contain no greater than 5% material passing a #200 sieve and shall have at least 50% of the particles (by weight) greater than 6 inches. The rock shall be placed in lifts not to exceed one foot and shall be composed of durable limestone that does not slake in water. Filter fabric (Supac 5-P or equivalent) shall be placed beneath the rock as shown on the drawings.

3. CHIMNEY DRAIN

Chimney drains shall be installed on the appropriately prepared slope as shown on the drawings. The rock shall conform to ASTM D 448, Size Number 357 or an alternate rock approved by MCI/Consulting Engineers, Inc. The rock shall be placed in lifts not exceeding eight inches and shall be composed of durable limestone that does not slake in water, or a washed, clean river gravel approved by MCI/Consulting Engineers, Inc. Filter fabric (Supac 5-P or equivalent) shall be placed around the rock fill as shown on the drawings and shall be overlapped a minimum of two feet at all locations where joints are necessary.

repaired as deemed necessary by the Engineer. it is the intent of these specifications to provide a uniformly stable surface on which to place fill.

8. PLACEMENT

A. General: No fill shall be placed in any area until such areas have been inspected and approved. The gradation and distribution of materials throughout the compacted fill section shall be such that the fill will be free from lenses, pockets, streaks, layers of material differing substantially in texture or gradation from surrounding material of the same class. Successive loads of materials shall be dumped at locations on the fill as directed or approved by the Engineer. No fill shall be placed upon a frozen surface, nor shall snow, ice, or frozen earth be incorporated in the fill. Unless otherwise directed, all earth fill materials shall be kept crowned with temporary slopes of at least 2% until completed.

B. Compaction: Fill shall be constructed of approved materials and shall be placed in lifts to the lines and grades on the drawings and staked in the field.

Where the fill is predominately earth, it will be placed in uniform layers no greater than eight inches in thickness. Successive layers shall be compacted to at least 95% of its maximum density according to ASTM D 698 (standard Proctor). Compaction shall be accomplished by sheepsfoot rollers, power rollers or other equipment approved by the Engineer.

Rock fill shall be placed in lifts approximately equal in thickness to the maximum particle size contained therein, but in no case greater than twelve inches. This material shall be

Specifications for Grading

SECTION III

1. SCOPE OF WORK

   The work covered in this section consists of furnishing all plant, labor and equipment and performing all operations in connection with the required excavation and placing all fills, including compaction, in accordance with the contract drawings and these specifications.

2. CLASSIFICATION

   A. Excavation

      All excavation shall be considered as unclassified. Subsurface exploratory data are available for review to assist the contractor in assessing the difficulty in achieving all excavations and in evaluating the work in general. However, the contractor is hereby notified that subsurface data furnished by the Owner is for general information only and the contractor is solely responsible for assessing the conditions.

3. DRAINAGE STRUCTURES

   Drainage structures including ditches and inlets shall conform to the alignment, grades and details shown by the Plans.

Specifications for Clearing and Grubbing

SECTION II

1. SCOPE OF WORK
   This specification covers the clearing and grubbing associated with site preparation and related works and disposal of all brush, timber and debris and all incidental work related thereto.

2. LIMITS OF THE WORK
   All trees, stumps, vegetation, topsoil and other deleterious materials must be removed from all areas of the site which require excavation, filling or grading. Topsoil shall be removed to the depth necessary to remove all roots and organic matter.

3. DISPOSAL OF MATERIALS
   All timber, brush and other organic materials from clearing operations shall be disposed of on-site. The area for disposal will be adjacent to the project, but not in a drainageway.

Vegetation

SECTION V

1. Permanent vegetation will be placed on all exposed or bare areas in accordance with the following sections.

   A. Soil Improvement: Evenly apply 150 pounds of agricultural limestone per 1000 square feet. Apply 10 pounds of 10-10-10 analysis fertilizer or equivalent per 1000 square feet.

   B. Seeding: Evenly apply 2 pounds of Rye Grass per 1000 square feet and 1/4 pound Common Bermuda per 1000 square feet. The lime, fertilizer, and seed may be applied separately by hand or with mechanical equipment, or they may be applied simultaneously by using a hydraulic seeder. Other seed as necessary to establish a year-round grass stand shall be applied.

   C. Protective Cover: To provide protective cover and conserve moisture during the establishment of vegetative cover, an erosion control fabric such as Hold-Gro or equivalent will be installed according to manufacturer's recommended procedures.

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

November 4, 1983

Mr. Charles H. Estes, III., P.E.
Mississippi Department of Natural Resources
Bureau of Pollution Control
Division of Solid Waste Management
P.O. Box 10385
Jackson, MS 39209

SUBJECT: Inactive Disposal Area - Vertac Chemical Corporation, Vicksburg, MS

Dear Mr. Estes:

Enclosed herewith is one certified copy of Gee & Strickland drawing dated October 25, 1983 showing As Built conditions for final capping on the Inactive Disposal Area. Also enclosed is Gee & Strickland letter dated October 25, 1983 by Philip C. Gee, P.E. certifying substantial compliance by the contractor with the plans and specifications of the contract dated September 14, 1983. This contract was based in part on drawings prepared by MCI/Consulting Engineers (Project 82-529 Sheets 1 thru 4 of 4).

The As Built drawing compares well to MCI Sheet 3 of 4 showing the final capping plan. In addition, these Gee & Strickland documents represent the condition found on the Ms/DNR Inspection on the afternoon of Monday, October 31, 1983 conducted by Mr. Estes and Mr. Spengler.

The contractor is aware of the seriousness of the vegetation cover requirements and his contract is written such that neither progress payment will be made nor performance retention released until such time as a mowable stand of grass is attained. Seeding operations for the Dike Improvements are scheduled within the next week and it is anticipated that such reseeding as is necessary for the Disposal Area will be accomplished at that time. In addition, it is expected that watering will be accomplished by a sprinkler system.

Very truly yours,

Robert W. James, Jr., P.E.
Project Engineer

RWJ/ksh

Enclosures

cc F. Ahlers
F. Bleyer (w/encl)
P. Buford (Buford Const.) (w/encl)
P. Gee (G&S)
D. Karkkainen (w/encl)
D. Madsen (w/encl)
F. Wilson (MCI) (w/encl & dwg)

GEE & STRICKLAND, INC.
CONSULTING ENGINEERS & SURVEYORS
1 Openwood Plaza
1104 Openwood St.
Vicksburg, Miss. 39180

Philip C. Gee, P.E.
Joseph G. Strickland, R.L.S.

Phone: 601-636-7831

October 25, 1983

Mr. Bob James, Jr., P.E.
Vertac Chemical Company
P.O. Box 3
Vicksburg, MS 39180

Re: Grading & Capping
Inactive Disposal Area

Dear Mr. James,

This letter is to serve as certification that Buford Construction Company has completed the Grading and Capping of the inactive disposal area in substantial compliance with plans and specifications of the contract dated September 14, 1983. The only major exception is a mowable stand of grass has not been achieved. The grass has been planted and fertilized and is beginning to emerge. A good grass cover should be established within the next few weeks. A copy of the As Built topographic survey is attached.

The grading does not extend as far to the South or West as shown on the plans. When grading began, the cut material was extremely wet and as it dried out during processing much higher than normal shrinkage factors were encountered. Accordingly, the inplace yardage of soil was reduced.

The end product complies with the intent of a minimum 18 inch cap of clean material and a final uniform grade providing drainage. All cap material was compacted to 95% ASTM D-698. Testing was done in accordance with ASTM D-2922.

Very Truly Yours,

Philip C. Gee, P.E.

PCG/jh

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1898-1985

CHARLES METCALF CRUMP
JERRE G. DUZANE
JOHN B. MAXWELL, JR.
ALLEN T. MALONE
PHILIP G. KAMINSKY
ROBERT L. DINKELSPIEL
MICHAEL E. HEWGLEY
JAMES F. RUSSELL
JOHN L. RYDER
THOMAS R. BUCKNER
MELODY W. OLIVER
WILLIAM B. MASON, JR.
STEVEN N. DOUGLASS
RANDY S. GARDNER

SAMUEL RUBENSTEIN
OF COUNSEL

LAW OFFICES
APPERSON, CRUMP, DUZANE & MAXWELL
SUITE 2110
ONE COMMERCE SQUARE
MEMPHIS, TENNESSEE 38103
901/525-1711

TELECOPY 901/521-0789

EAST OFFICE

SUITE 100
KIRBY CENTRE
1755 KIRBY PARKWAY
MEMPHIS, TENNESSEE 38119
901/756-6300
TELECOPY 901/757-1296

September 1, 1989

Allan E. Antley, Chief
Waste Compliance Section
United States Environmental
Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

VIA FEDERAL EXPRESS

Dear Mr. Antley:

In accordance with our telephone conversation today, this letter is in response to a letter from Patrick M. Tobin, Director, Waste Management Division, dated August 25, 1989 to Steven T. Boswell, Director, Environmental Affairs of Cedar Chemical Corporation's Vicksburg, Mississippi Plant, which was received at the Plant this date. Since Steve is out of town on vacation and will not return to the Plant until after next week, I am responding to the letter.

As we discussed today, the enclosures to Mr. Boswell's letter of August 3, 1989 are the only documents in Cedar's files which are responsive to the questions which were raised in Mr. Tobin's earlier letter dated July 18, 1989. Steve's reference to correspondence pertaining to closure of the old landfill following a field investigation by your office in 1981 was only intended to direct your attention to that file in case there might be something in the file which would be responsive to the questions raised. We of course do not have access to that file.

To reiterate, after an extensive search of its records both at the Vicksburg Plant and at the Company's corporate office in Memphis, and after review of files at the Mississippi Bureau of Pollution Control, Cedar is not aware of any information relating to material disposed of in the old landfill area (or relating to the other matters on which information was requested) except for the information contained in the documents that were enclosed with Steve's letter to you dated August 3, 1989. The sampling report which was generated by your office and submitted to the previous plant owner by letter of March 2, 1982, was not deemed responsive and in any event, it was assumed that you had access to that report. The same is true of the letter from the Department of Natural Resources dated February 14, 1983 approving the closure plan for the landfill which was implemented by the previous plant owner that year.

I want to assure you and your associates that Cedar is committed to provide the Agency with any additional information at Cedar's disposal concerning questions regarding past operations and practices on the Vicksburg Plant site. At your suggestion, I attempted to reach Jeaneanne Gettle to determine the additional information which the Agency would like us to provide. By copy of this letter to Ms. Gettle, I ask that she contact me by telephone to clarify what additional information is being requested. As we discussed, it is likely that someone has misinterpreted Steve's letter and concluded that we have additional documents responsive to Mr. Tobin's earlier letter which were not provided. If that is the case, it is my fault since I helped Steve draft the response after we had reviewed numerous old files and records. If additional documents are required, I will get them to you as soon as possible, with the understanding that to the extent I need Steve to assist in a review of files, I may need some additional time since he will not return to work until September 13, 1989.

Thank you for your consideration. I will look forward to hearing from Ms. Gettle.

Sincerely yours,

Allen T. Malone

ATM:jw

cc: Ms. Jeaneanne Gettle
Environmental Engineer

cc: Mr. Steven T. Boswell

Rec'd 9/1/89
HAm

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

AUG 25 1989

4WD-RCRA

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Steven T. Boswell, Director
Environmental Affairs
Cedar Chemical Corporation
P.O. Box 3
Vicksburg, Mississippi 39180

RE: July 18, 1989 Request for Information Pursuant to Section 104 of CERCLA and Section 3007 of RCRA

Dear Mr. Boswell:

The United States Environmental Protection Agency requested, in the referenced document, certain information on the source, extent and nature, of the release or threatened release of hazardous substances, pollutants or contaminants on or about the Cedar Chemical Corporation (CCC) in Vicksburg, Mississippi. The information was requested pursuant to the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 42 U.S.C. Section 9604, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), P.L. 99-499, and Section 3007 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6927.

In your response, dated August 3, 1989, you admitted having in your files certain information which was responsive to this request, but failed to provide this information to the Agency. You are hereby directed to provide all information responsive to our July 18, 1989 request to the following address within five (5) calendar days of receipt of this letter.

Allan E. Antley, Chief
Waste Compliance Section
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

If you fail again to provide all information within your possession which is responsive to the referenced request, EPA will seek the imposition of penalties of up to twenty-five thousand dollars ($25,000) for each day of continued non-compliance.

The information requested must be provided notwithstanding its possible characterization as confidential information or trade secret. You may, if you desire, assert a business confidentiality claim covering part or all of the information requested, in the manner described by 40 C.F.R. Section 2.203 (b), by attaching to such information at the time it is submitted, a notice employing language such as "trade secret," or "proprietary," or "company confidential." Information covered by such a claim will be disclosed by EPA only to the extent, and only by the means of the procedures set forth in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is received by EPA it may be made available to the public by EPA without further notice to you. You should read the above cited regulation carefully before asserting a business confidentiality claim, since certain categories of information are not properly the subject of such a claim.

Should you have any questions, please contact Jeaneanne Gettle, Environmental Engineer at (404) 347-7603 or Zylpha Pryor, Assistant Regional Counsel, at (404) 347-2641.

Sincerely,

Patrick M Tobin

Patrick M. Tobin
Director
Waste Management Division

cc: Sam Mabry
Mississippi Department of Natural Resources

Allen T. Malone
Apperson, Crump, Duzane and Maxwell

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P.O. BOX 3
VICKSBURG, MS 39181
(601) 636-1231

RECEIVED
AUG 07 1989
Dept. of Natural Resources
Bureau of Pollution Control

August 3, 1989

DIVISION OF SOLID WASTE
REVIEWED BY TC
DATE 8/8/89

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 677 981 840

Mr. Allan E. Antley, Chief
Waste Compliance Section
U.S. EPA, Region IV
RCRA Branch
345 Courtland Street, NE
Atlanta, Georgia 30365

Re: Request for Information Pursuant to Section 104 of CERCLA and Section 3007 of RCRA for Cedar Chemical Corporation in Vicksburg, Mississippi

Dear Mr. Antley:

Pursuant to the above-referenced request, we have reviewed all available records and files including those maintained by previous owners of the Vicksburg Chemical Plant. I have also discussed the request with present and former employees at the Vicksburg Plant who were involved in environmental and safety compliance. Based on all of this, I have found the following:

Response to Questions No. 1 and 2:

Please see attached report dated February 18, 1983 from R. F. Maraman of Vertac (Cedar's predecessor) to Mr. Charles Estes of the Mississippi Bureau of Pollution Control.

This is the only incident that has ever caused implementation of the SPCC or Contingency Plan to the best of my knowledge.

Response to Question No. 3:

Please see attached letter dated March 17, 1980, from Mr. Jim Hardage of the Mississippi State Board of Health to Mr. Rodger Marentis of Vertac, Inc. (a former owner of the site). The letter is accompanied by a sketch displaying the approximate location of previously disposed materials. I am told that the previous owner of the Plant arranged to dispose of certain of these wastes in a permitted facility off the site and I have found correspondence dating back to 1979 indicating that such a plan had been recommended, but I have found nothing to document exactly what was removed and where it was taken.

In addition to the sketch referred to above, please see the enclosed aerial photograph.

The "old landfill" was inactive after 1979 and was closed and capped in late 1983 pursuant to an order of the Mississippi Department of Natural Resources dated November 10, 1982. The Order directed Vertac, the previous owner of the Vicksburg Plant, to carry out various studies and develop plans in connection with closure of the old landfill. I believe the order was precipitated in part by a field investigation by EPA on October 29, 1981. A copy of the sampling report generated as a result of that investigation was sent by EPA Region IV to the previous plant owner by letter dated March 2, 1982. I assume you have a copy of that report.

Our files do include voluminous correspondence between the prevous plant owner and officials at the Mississippi Department of Natural Resources concerning development and implementation of the closure plan. The plan was approved by a letter from the Department on February 14, 1983 and was fully implemented thereafter. Grading and capping were carried out under a contract between the former owner of the plant and its contractor, Gee Strickland, Inc., based on plans and specifications prepared by MCI/Consulting Engineers of Knoxville, Tennessee. I am sure that the Mississippi Bureau of Pollution Control has complete files documenting the closure, including copies of all reports and correspondence that are included in the previous plant owner's files which are in Cedar's possession.

If we can provide any additional information that would be responsive to your requests, please identify in writing the additional information needed, with a copy to Cedar's attorney identified below.

Sincerely,

Steven T. Boswell
Director of Environmental Affairs

STB:ld
Enc.

cc: Mr. Allen T. Malone
Apperson, Crump, Duzane & Maxwell
Suite 2110, One Commerce Square
Memphis, Tennessee 38103

cc: Mr. Steven Spengler
Mississippi Department of Natural Resources
Bureau of Pollution Control

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

February 18, 1983

Bureau of Pollution Control
Hazardous Waste Division
P.O. Box 10385
Jackson, MS 39209

Attention: Mr. Charles Estes

Subject: Report on Holding Pond Incident

In compliance with existing regulations the following report is submitted.

OWNER OF THE FACILITY:

Vertac Chemical Corporation
24th Floor, 5100 Poplar
Memphis, TN 38137
901-767-6851

NAME, ADDRESS AND TELEPHONE NUMBER OF THE FACILITY:

Vertac Chemical Corporation
Vicksburg, MS Plant
P.O. Box 3
Rifle Range Road
Vicksburg, MS 39180
601-636-1231

DATE, TIME AND TYPE OF INCIDENT:

February 5, 1983
Between midnight and 0800.
Fracture in the dike on the East side of the holding pond causing approximately 60% of same to empty into Stouts Bayou.

NAME AND QUANTITY OF MATERIALS INVOLVED:

Approximately 700,000 gallons of waste water containing an estimated 4 ppm Dinitro Butyl Phenol as the major toxic constituent.

EXTENT OF INJURIES:

None to personnel.

No apparent injury to fish, wildlife, or the environment as estimated from subsequent chemical analysis and inspection.

POTENTIAL HAZARDS:

A potential hazard existed to fish and wildlife, but was estimated to be minimal due to the immense volume of rain water run-off in the bayou.

It rained heavily before the fracture and continued to rain through 2-5-83 and until approximately noon on 2-6-83.

ESTIMATION - QUANTITY AND DISPOSITION OF RECOVERED MATERIAL:

Recovered material, estimated at two (2) yards of contaminated mud from the pond, was removed from the fracture repair area and placed back into the pond impoundment area.

In addition to the above, the following is a running account of events from February 5, 1983 through February 14, 1983:

1. 2-5-83 - Approximately 0830:

   Plant officials met at the fracture to assess the situation and determine possible hazards to human health and the environment.

   No hazards were apparent in the immediate vicinity nor did it appear that any evacuation would be necessary.

   Attention was turned to stopping the rain water run-off flowing to the creek. The pond consists of a settling section and a holding section separated by a finger dike except for a 6 foot section to allow effluent passage. Plans were made to first close the settling section, thus stopping the flow to the creek, then repair the fracture in the main dike.

   A contractor, Miller Construction, was called in to start the closing operation.

   The fracture was caused by the heavy rains in the area.

   Approximately 0900:

   The emergency response center was contacted. The situation was reported to Rick Sherrard and he contacted Steve Spengler.

   Approximately 1000:

   The bayou was inspected approximately two (2) miles South of the plant near MP&L. The bayou was muddy and approximately 10 foot deep.

   No fish kills or environmental damage was observed there or in the near by area.

   Meanwhile, Miller Construction had arrived at the plant and closed the finger dike, thus stopping any discharge to the fracture and into the creek.

   The DNBP Plant was shutdown, the Toxaphene Plant was not in operation, and the hill tank flow was stopped. At this time the plant effluent consisted of rain water run-off.

Approximately 1300:

A return trip was made to the bayou near MP&L. The water had risen to near bank level but again no dead fish or apparent environmental damage was observed.

A creek sample was taken. The analysis was 0.4 ppm DNBP and 30 ppb Toxaphene.

Approximately 1600:

Heavy rain had set in.

Steve Spengler visited to inspect the fracture, and obtained samples of the pond bottom. Steve discussed several courses of action and outlined precautions to be taken.

Vertac also sampled the pond bottom. The analysis was 31.6 mg/Kilo DNBP and 132 mg/Kilo.

An emergency watch was set up to prevent leaks from the finger dike dam during the night.

2. 2-6-83:

Since the dike surrounding the pond was saturated from recent rains, it would not support heavy equipment. Therefore, Miller Construction started constructing a road across the "dry" mid section of the pond to reach the fracture. They worked 24 hours per day to reach the fracture.

Steve Spengler visited to review progress and meet with Vertac officials and Dick Karkkainen, the Environmental Manager.

At 1130 the bayou near MP&L was sampled. The analysis was less than 0.1 ppm DNBP and 5 ppb Toxaphene.

The bayou was bank full with water. No dead fish or environmental damage was observed.

3. 2-7-83:

Miller Construction reached and filled the fracture. Reinforcing dirt was placed for almost 15 feet North and South of the closed fracture.

Plans were formulated to extend the existing dike by extending the width to approximately 20 feet, the length of the pond on the East side.

A consultant, Gee-Strickland, arrived to observe repairs and make recommendations.

A 36 inch concrete pipe was placed in the new road allowing the dammed up water to flow to the effluent pumps.

Steve Spengler and Charles Estes collected additional samples and advised moving the contaminated mud that had oozed out from under the dirt fill. The mud was removed by Miller Construction and placed in the "dry" pond area.

During the night water started to breach the access road, but the emergency crew repaired the leak and prevented major damage.

Approximately 1130:

The bayou at MP&L was inspected and sampled. It was about 15 feet deep. No dead fish or environmental damage was observed.

The analysis was nil DNBP and less than 1 ppb Toxaphene.

4. 2-8-83:

A storm front was expected to arrive. It was anticipated that rain water would run from the South hill area into the "dry" portion. A diesel pump was brought in to pump the water into the containment section.

A nearby source of good dirt was located to be used to extend the East dike.

The rain started in the afternoon.

5. 2-9-83:

The rain became a 2 1/2 inch downpour. Run-off water broke through the access road, but the diesel pump kept the situation under control.

The rest of the evening was a holding action.

Stouts Bayou rose to within inches of the top of the fracture repair and sandbags were placed to prevent the bayou from running into the pond.

The repair held with only minor washing on the bayou side.

6. 2-10-83:

Access road and fracture repair brought up to proper elevation.

7. 2-11-83:

Progress continued in a North-South direction on the East dike extention and it was completed on 2-14-83.

Steve Spengler and Charles Estes visited to inspect the progress.

Approximately 1/2 the pond is operational with the remainder to be placed in service as soon as possible.

To this point Vertac has spent approximately $63,000 to repair the fracture.

The strategy to protect Vertac's repair investment is currently being discussed at the corporate level.

R. F. Maraman

R.F. MARAMAN
Chief Chemist

RFM/tsd

cc: Steve Spengler
R.F. Maraman
Effluent File
File

MISSISSIPPI
STATE BOARD OF HEALTH
2423 NORTH STATE STREET, P. O. BOX 1700
JACKSON, MISSISSIPPI 39205

ALTON B. COBB. M.D., M.P.H.
STATE HEALTH OFFICER

March 17, 1980

Mr. Rodger Marentis
Vertac, Inc.
P. O. Box 3
Vicksburg, MS 39180

Dear Mr. Marentis:

As you know, David Lee and I met with you and other company officials on December 6, 1979 in regard to chemical waste disposal. We recently forwarded an assessment to EPA, based primarily on information you submitted to us during that meeting.

Since you indicated that some of the information discussed with us may be confidential, we request that you review the enclosed copy of the assessment and notify this agency in writing within fifteen (15) calendar days concerning any proprietary information in the report that should remain confidential and the reasons why. Please send your reply to the attention of the Director, Mr. Jack McMillan.

You may want to make a similar request for confidentiality to EPA Region IV. The mailing address for that is as follows:

Mr. Joel Veater
Chemical Site Unit
Hazardous Materials Division
EPA Region IV
345 Courtland Street
Atlanta, GA 30308

If you have any questions, please contact this agency.

Sincerely,

Jim Hardage

Jim Hardage, Chemist
Division of Solid Waste Management

JH/cs

cc: Mr. Joel Veater

POTENTIAL HAZARDOUS WASTE SITE IDENTIFICATION AND PRELIMINARY ASSESSMENT | IV

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II (Preliminary Assessment). File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Vicksburg Chemical Company, Drum Burial Site

B. STREET (or other identifier): Rifle Range Road

C. CITY: Vicksburg

D. STATE: MS

E. ZIP CODE:

F. COUNTY NAME: Warren

G. OWNER/OPERATOR (if known)

1. NAME: (Now owned by) Vertac Chemical Company
2. TELEPHONE NUMBER: 601-636-1231

H. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4 MUNICIPAL ☒ 5. PRIVATE ☐ 6 UNKNOWN

I. SITE DESCRIPTION

J. HOW IDENTIFIED (i.e., citizen's complaints, OSHA citations, etc.): Eckhardt's Report

K. DATE IDENTIFIED (mo., day, & yr.): 11/2/79

L. PRINCIPAL STATE CONTACT

1. NAME: Mississippi State Board of Health, Division of Solid Waste Management
2. TELEPHONE NUMBER: 601-982-6317

II. PRELIMINARY ASSESSMENT (complete this section last)

A. APPARENT SERIOUSNESS OF PROBLEM

☐ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☐ 4 NONE ☒ 5. UNKNOWN

B. RECOMMENDATION

☐ 1. NO ACTION NEEDED (no hazard)

☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☒ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY: STATE

☐ 4. SITE INSPECTION NEEDED (low priority)

C. PREPARER INFORMATION

1. NAME: James Hardage, David Lee
2. TELEPHONE NUMBER: 601-982-6317
3. DATE (mo., day, & yr.): 12/10/79

III. SITE INFORMATION

A. SITE STATUS

☐ 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently).

☒ 2. INACTIVE (Those sites which no longer receive wastes.)

☐ 3. OTHER (specify): (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has oc...)

B. IS GENERATOR ON SITE?

☐ 1. NO ☒ 2. YES (specify generator's four-digit SIC Code): 2819, 2873

C. AREA OF SITE (in acres): About 5 acres

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE (deg.-min.-sec.)
2. LONGITUDE (deg.-min.-sec.)

E. ARE THERE BUILDINGS ON THE SITE?

☒ 1. NO ☐ 2. YES (specify):

Continued From Front

CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' [illegible]e appropriate boxes.

'X'	A. TRANSPORTER	'X'	B. STORER	'X'	C. TREATER	'X'	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION	X	1. LANDFILL
	2. SHIP	X	2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY	X	4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS. TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify):		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify):
					9. OTHER (specify):		

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

See additional comments on page 3.

V. WASTE RELATED INFORMATION

A. WASTE TYPE

☐ 1 UNKNOWN ☒ 2 LIQUID ☒ 3. SOLID ☐ 4. SLUDGE ☐ 5. GAS

B. WASTE CHARACTERISTICS

☐ 1. UNKNOWN ☒ 2. CORROSIVE ☐ 3. IGNITABLE ☐ 4 RADIOACTIVE ☐ 5 HIGHLY VOLATILE
☒ 6. TOXIC ☐ 7 REACTIVE ☐ 8. INERT ☐ 9 FLAMMABLE

☐ 10. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Records are incomplete according to the company.

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT: 3000 - 4000	AMOUNT:	AMOUNT:	AMOUNT: about 200,000	AMOUNT: 325-330	AMOUNT:
UNIT OF MEASURE: cu. yards	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE: gal.	UNIT OF MEASURE: Drums*	UNIT OF MEASURE:
'X' (1) PAINT, PIGMENTS	'X' (1) OILY WASTES	'X' (1) HALOGENATED SOLVENTS	'X' (1) ACIDS	'X' (1) FLYASH	'X' (1) LABORATORY PHARMACEU[TICAL]
(2) METALS SLUDGES	(2) OTHER (specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify):	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIV[E]
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMLTG. WASTES	(4) MUNICIPAL
(5) OTHER (specify): dredge material with trace contaminants (DNBP and atrazine)			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (spec[ify])
			(6) CYANIDE	(6) OTHER (specify): *See bottom of page 4.	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify): Dinitrobutyl phenol (DNBP) wastewater		

Continue On Pag[e]

Continued From Page 2

V. WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE (place in descending order of hazard).

See attached page for details.

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH				
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY				
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER				
8. CONTAMINATION OF SURFACE WATER				
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL				
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify):				

Continue On Reverse

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

- [X] 1. NPDES PERMIT
- [X] 2. SPCC PLAN
- [ ] 3. STATE PERMIT *(specify)*:
- [X] 4. AIR PERMITS
- [ ] 5. LOCAL PERMIT
- [ ] 6. RCRA TRANSPORTER
- [ ] 7. RCRA STORER
- [ ] 8. RCRA TREATER
- [ ] 9. RCRA DISPOSER
- [ ] 10. OTHER *(specify)*:

B. IN COMPLIANCE?

- [ ] 1. YES
- [X] 2. NO
- [ ] 3. UNKNOWN

4. WITH RESPECT TO *(list regulation name & number)*: Not in compliance with NPDES permit with respect to Nitrates

VIII. PAST REGULATORY ACTIONS

- [ ] A. NONE
- [X] B. YES *(summarize below)*

Fined by Bureau of Pollution Control for permit violation.

IX. INSPECTION ACTIVITY *(past or on-going)*

- [ ] A. NONE
- [X] B. YES *(complete items 1,2,3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY: *(EPA/State)*	4. DESCRIPTION
Inspection	Aug., 1979	EPA	Geological assessment
Inspection	Dec. 6, 1979	STATE	

X. REMEDIAL ACTIVITY *(past or on-going)*

- [ ] A. NONE
- [X] B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY: *(EPA/State)*	4. DESCRIPTION
			Vertac is considering removal of solids
			secure landfill

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment *(Section II)* information on the first page of this form.

continued from question No. 2, page 2

Records do not specify size of drums; but probably are 55-gal. drums.
Drummed wastes are as follows:

1. 17 drums of spent activated carbon (containing unknown trace organics)
2. 31 drums of plastic liners (from bags containing sodium nitrophenol) and empty bromine bottles.
3. 25-30 drums of DMU (dimethyl urea) and IPA (isopropyl amine)
4. 172 drums cyanuric chloride (from atrazine process)
5. 80 drums PCl_3, $PSCl_3$, or $PS(CH_3)_2Cl$

Three small pits contain dredge material from surge lagoon under NPDES permit. The dredge material is mostly dirt with traces of DNBP and atrazine. (DNBP has a 170 day half-life. Atrazine has a 90-day half-life.) The dirt comes from runoff that flows into surge lagoon. Rainwater falling into the pits is drained into surge lagoon.

Another pit contains about 200,000 gallons of DNBP wastewater. About 1 1/2 million gallons have already been treated on-site by carbon absorbtion before discharge (NPDES system). Pit should be emptied by January, 1980.

Drums contain solid materials buried in late 1974 and early 1975 by Vicksburg Chemical Company. Drummed wastes are from processes that are no longer operational. Drummed wastes, though buried in the same general area, were segregated. PCl_3 wastes were buried in a seperate area.

An additional 4000 empty drums were placed in another pit in 1975-76. Vicksburg Chemical attempted to dissolve the drums with HCl acid. Volume of acid unknown. Acid was drained off after one to two months. Probably bled into wastewater treatment system. All but about 200 deteriorated drums have been removed.

Since September, 1975, all waste materials are taken to permitted industrial waste landfills in Louisiana. There is no current on-site disposal. The methyl parathion plant is no longer operational.

This information was obtained from Vertac Chemical Company Officials.

SOLID WASTE DISPOSAL SITES

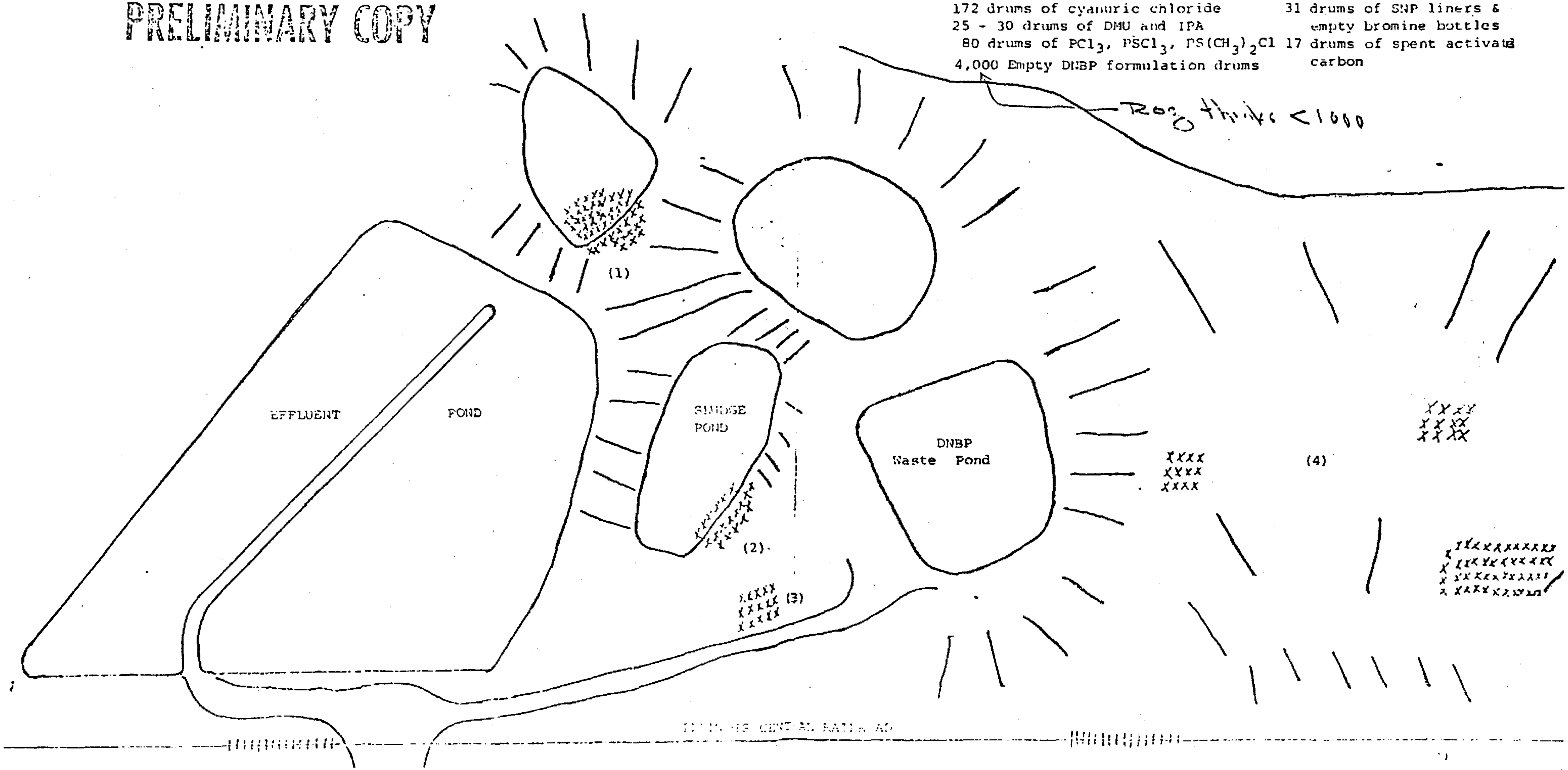
1. Empty DNBP formulation drums
2. Residue and debris Methyl Parathion fire
3. PCl_3, $PSCl_3$, $PS(CH_3)_2Cl$
4. Cyanuric Chloride, SNP liners, Bromine bottles, DMU, IPA, spent activated carbon

Between Jan. 1 and Sept. 17, 1975 the following material was disposed of in this area:

172 drums of cyanuric chloride
25 - 30 drums of DMU and IPA
80 drums of PCl_3, $PSCl_3$, $PS(CH_3)_2Cl$
4,000 Empty DNBP formulation drums

31 drums of SNP liners & empty bromine bottles
17 drums of spent activated carbon

PRELIMINARY COPY




-26-79
26

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P.O. BOX 3
VICKSBURG, MS 39181
(601) 636-1231

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 677 981 824

RECEIVED
JUL 14 1989
Dept. of Natural Resources
Bureau of Pollution Control

July 13, 1989

Mr. Toby Cook
Environmental Engineer
Bureau of Pollution Control
2380 Highway 80 West
Jackson, Mississippi 39209

DIVISION OF SOLID WASTE
REVIEWED BY T
DATE 7/14/89
COMMENTS

Subject: Cedar Chemical Corp.
South Pond Retrofit Status Report

Dear Mr. Cook:

As we have discussed in several telephone conversations during the past few months, there have been some changes in the Cedar Chemical South Pond project. None are so major as to have caused a basic change to the intent or method of conducting the project. This letter is intended to describe those changes and the progress of the project thus far.

The project has been significantly delayed by the frequent and heavy rainfall nearly everyone has experienced this year in Mississippi. At this time, we are still in the stage of constructing the Solid Waste Disposal Area (SWCA). Sediments from the area have been solidified and stockpiled within the pond boundaries. Samples of the SWCA bottom were taken and analyzed for the parameters the Bureau requested. The results are attached along with a drawing showing the sample locations.

Installation of the SWCA leachate collection and leak detection sumps was completed June 23rd. Construction of the North levee of the SWCA was begun on June 23rd. Following construction of the levees around the SWCA, installation of the liners, leachate collection and leak detection piping can begin. The liner installation should take approximately two weeks (weather permitting).

The changes that have been made are as follows:

1. The location of the pump station has been moved to the west side of the ponds and the elevation of the pump intake lines has been raised from 95′ to 96′. (See drawings)

2. The leachate collection and leak detection sumps material of construction has been changed from HDPE to asphaltic coated concrete to avoid possible buoyancy problems. The sumps are 5′ in diameter to allow access. The bottom of the sumps will have

an 80 mil HDPE liner to above the high level alarm level.

3. Field fabricated boots will replace prefabricated boots on liner piping penetrations.

4. Cast iron valves for flow control have been replaced by PVC plastic valves.

5. The leachate collection sump pump will be a 2hp submersible.

6. Excess liner placement to accomodate settlement will be at the levee crest instead of at the toe.

7. The liner anchor trenches depths have been increased by one foot.

8. Extra solidification of the SWCA base material has been performed to insure bearing capacity required.

9. The SWCA north levee now includes a 8′ wide by 2′ - 3′ deep key placed along its centerline.

If there are questions concerning this matter, please contact me.

Sincerely,

Steven T. Boswell

STB: pc

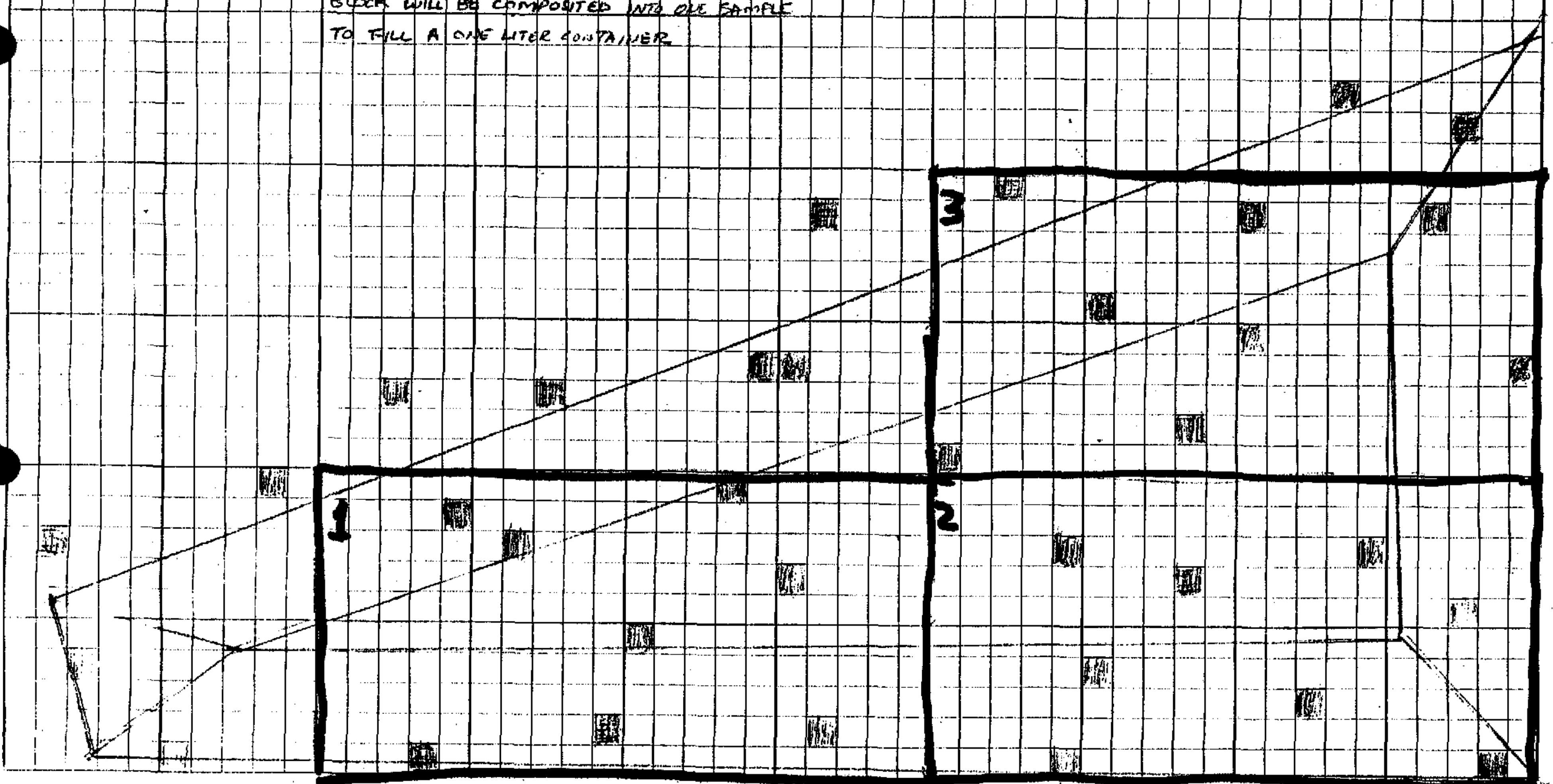
Steven T. Boswell
Director of Env. Affairs

SWCA SAMPLING PLAN

PROGRAM

```
5 HOME
10 X = RND(3)*25
15 PRINT INT(X+1)
```

EACH LOCATION WILL BE SAMPLED USING A 3/4" SOIL SAMPLER TO A DEPTH OF 12". SAMPLES IN EACH BLOCK WILL BE COMPOSITED INTO ONE SAMPLE TO FILL A ONE LITER CONTAINER.



ENVIRONMENTAL PROTECTION SYSTEMS

P.O. Box 20382 • 165 Upton Drive • Jackson, MS 39209 • Telephone (601) 922-8242 • FAX (601) 922-9163

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHE DATE: 06/28/89 COLLECTED BY: CLIENT REPORT NO.: 7509 PAGE NO.: 1
LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS RECEIPT DATE: 06/06/89 PROJECT NO.:

TEST RESULTS	UNITS	LABORATORY RESULTS / REGULATORY LIMIT				ANALYSIS INFORMATION			BATCH QUALITY CONTRO		
						ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE DEVIATIO
TEST RESULTS FOR SAMPLE LOG NUMBER:		10179.00									
Arsenic, Total	mg/kg	6.4				BSC	06/08/89	16:00	0.200	100	0
Atrazine	mg/kg	770				SCP	06/12/89	08:00	1.67	90	5
Bladex	mg/kg	<50				SCP	06/12/89	08:00	1.67	103	23
Dinitrobutylphenol	mg/kg	<0.3				SCP	06/15/89	08:00	NA	NA	NA
Methyl Parathion	mg/kg	<50				SCP	06/12/89	08:00	0.83	102	4
Toxaphene	mg/kg	134				SCP	06/12/89	08:00	0.83	87	NA

SUPPLEMENT INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

SAMPLE DESCRIPTION:
10179.00 SOIL SAMPLE #1 FOR TOTAL PARAMETERS

COLLECTION DATE/TIME:
06/01/89 06/01/89 UNK

CERTIFICATION:

John Broussard
Quality Assurance and Quality Control

Herbert R. Johnston
Analytical and Bio-Analytical Services

ENVIRONMENTAL PROTECTION SYSTEMS

P.O. Box 20382 • 165 Upton Drive • Jackson, MS 39209 • Telephone (601) 922-8242 • FAX (601) 922-9163

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEMDATE: 06/28/89 COLLECTED BY: CLIENT REPORT NO.: 7510 PAGE NO.: 1

LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS RECEIPT DATE: 06/06/89 PROJECT NO.:

TEST RESULTS	UNITS	LABORATORY RESULTS				ANALYSIS INFORMATION			BATCH QUALITY CONTROL		
		REGULATORY LIMIT				ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE % DEVIATION
TEST RESULTS FOR SAMPLE LOG NUMBER:		10181.00									
Arsenic, Total	mg/kg	<0.3				BSC	06/08/89	16:00	0.200	100	0
[illegible]razine	mg/kg	389				SCP	06/12/89	08:00	1.67	90	5
Bladex	mg/kg	91				SCP	06/12/89	08:00	1.67	103	23
Dinitrobutylphenol	mg/kg	28.6				SCP	06/15/89	08:00	NA	NA	NA
Methyl Parathion	mg/kg	<50				SCP	06/12/89	08:00	0.83	102	4
Toxaphene	mg/kg	22				SCP	06/12/89	08:00	0.83	87	NA

[illegible]PPLEMENT INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

SAMPLE DESCRIPTION:	COLLECTION DATE/TIME:	CERTIFICATION:
10181.00 SOIL SAMPLE #2 FOR TOTAL PARAMETERS	06/01/89 06/01/89 UNK	John Broussard Quality Assurance and Quality Control Herbert A. Johnston Analytical and Bio-Analytical Services

ENVIRONMENTAL PROTECTION SYSTEMS

P.O. Box 20382 • 165 Upton Drive • Jackson, MS 39209 • Telephone (601) 922-8242 • FAX (601) 922-9163

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHE DATE: 06/28/89 COLLECTED BY: CLIENT REPORT NO.: 7511 PAGE NO.: 1

LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS RECEIPT DATE: 06/06/89 PROJECT NO.:

TEST RESULTS	UNITS	LABORATORY RESULTS / REGULATORY LIMIT				ANALYSIS INFORMATION			BATCH QUALITY CONTRO		
						ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE DEVIATIO
TEST RESULTS FOR SAMPLE LOG NUMBER:		10183.00									
Arsenic, Total	mg/kg	7.9				BSC	06/08/89	16:00	0.200	100	0
Atrazine	mg/kg	227				SCP	06/12/89	08:00	1.67	90	5
Bladex	mg/kg	<50				SCP	06/12/89	08:00	1.67	103	23
Dinitrobutylphenol	mg/kg	<0.3				SCP	06/15/89	08:00	NA	NA	NA
Methyl Parathion	mg/kg	<50				SCP	06/12/89	08:00	0.83	102	4
Toxaphene	mg/kg	50				SCP	06/12/89	08:00	0.83	87	NA

SUPPLEMENT INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

SAMPLE DESCRIPTION:	COLLECTION DATE/TIME:	CERTIFICATION:
10183.00 SOIL SAMPLE #3 FOR TOTAL PARAMETERS	06/01/89 06/01/89 UNK	John Broussard Quality Assurance and Quality Control Herbert A. Johnston Analytical and Bio-Analytical Services

ENVIRONMENTAL PROTECTION SYSTEMS

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LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 06/26/89
LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS
COLLECTED BY: CLIENT
RECEIPT DATE: 06/06/89
REPORT NO.: 7463 PAGE NO.: 1
PROJECT NO.:

TEST RESULTS	UNITS	LABORATORY RESULTS				ANALYSIS INFORMATION			BATCH QUALITY CONTR[OL]		
		REGULATORY LIMIT				ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIV[E] DEVIATI[ON]
TEST RESULTS FOR SAMPLE LOG NUMBER:		10180.00									
Arsenic, Total Leachable	mg/l	0.03				BSC	06/08/89	16:00	0.200	100	0
Atrazine, Total Leachable	ug/l	93000				SCP	06/13/89	10:50	NA	NA	NA
Bladex, Total Leachable	ug/l	100000				SCP	06/13/89	10:50	NA	NA	NA
Dinitrobutylphenol, Total Leachable	mg/l	0.36				SCP	06/09/89	09:30	0.1	88	NA
Methyl Parathion, Total Leachable	ug/l	<100				SCP	06/13/89	10:50	25	85	NA
Toxaphene, Total Leachable	ug/l	<24				SCP	06/13/89	10:50	25	87	NA

SUPPLEMENT INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

SAMPLE DESCRIPTION:	COLLECTION DATE/TIME:
10180.00 SOIL SAMPLE #1 FOR LEACHABLE PARAMETERS	06/01/89-06/01/89 UNK
	-
	-
	-

CERTIFICATION:

L. R. Hudnall
Quality Assurance and Quality Control

John Broussard
Analytical and Bio-Analytical Services

ENVIRONMENTAL PROTECTION SYSTEMS

P.O. Box 20382 • 165 Upton Drive • Jackson, MS 39209 • Telephone (601) 922-8242 • FAX (601) 922-9163

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM
LOCATION: VICKSBURG, MS 39180
DATE: 06/26/89
PROJECT LOCATION: VICKSBURG, MS
COLLECTED BY: CLIENT
RECEIPT DATE: 06/06/89
REPORT NO.: 7464
PROJECT NO.:
PAGE NO.: 1

TEST RESULTS	UNITS	LABORATORY RESULTS / REGULATORY LIMIT				ANALYSIS INFORMATION			BATCH QUALITY CONTRC		
						ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE DEVIATIC
TEST RESULTS FOR SAMPLE LOG NUMBER:		10182.00									
Arsenic, Total Leachable	mg/l	0.04				BSC	06/08/89	16:00	0.200	100	0
Atrazine, Total Leachable	ug/l	66000				SCP	06/13/89	10:50	NA	NA	NA
Bladex, Total Leachable	ug/l	45000				SCP	06/13/89	10:50	NA	NA	NA
Dinitrobutylphenol, Total Leachable	mg/l	10.5				SCP	06/09/89	09:30	0.1	88	NA
Methyl Parathion, Total Leachable	ug/l	<100				SCP	06/13/89	10:50	25	85	NA
Toxaphene, Total Leachable	ug/l	<24				SCP	06/13/89	10:50	25	87	NA

SUPPLEMENT INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

SAMPLE DESCRIPTION:	COLLECTION DATE/TIME:
10182.00 SOIL SAMPLE #2 FOR LEACHABLE PARAMETERS	06/01/89 06/01/89 UNK

CERTIFICATION:

L. R. Hudnall
Quality Assurance and Quality Control

John Broussard
Analytical and Bio-Analytical Services

ENVIRONMENTAL PROTECTION SYSTEMS

P.O. Box 20382 • 165 Upton Drive • Jackson, MS 39209 • Telephone (601) 922-8242 • FAX (601) 922-9163

LABORATORY REPORT

CLIENT: VICKSBURG CHEMICAL DIV OF CEDAR CHEM DATE: 06/26/89
LOCATION: VICKSBURG, MS 39180 PROJECT LOCATION: VICKSBURG, MS

COLLECTED BY: CLIENT
RECEIPT DATE: 06/06/89

REPORT NO.: 7465 PAGE NO.: 1
PROJECT NO.:

TEST RESULTS	UNITS	LABORATORY RESULTS				ANALYSIS INFORMATION			BATCH QUALITY CONTRO		
		REGULATORY LIMIT				ANALYST	DATE	TIME	SPIKE VALUE	% RECOVERY	RELATIVE DEVIATIC
TEST RESULTS FOR SAMPLE LOG NUMBER:		10184.00									
Arsenic, Total Leachable	mg/l	<0.03				BSC	06/08/89	16:00	0.200	100	0
Atrazine, Total Leachable	ug/l	45000				SCP	06/13/89	10:50	NA	NA	NA
Bladex, Total Leachable	ug/l	22000				SCP	06/13/89	10:50	NA	NA	NA
Dinitrobutylphenol, Total Leachable	mg/l	0.17				SCP	06/09/89	09:30	0.1	88	NA
Methyl Parathion, Total Leachable	ug/l	<100				SCP	06/13/89	10:50	25	85	NA
Toxaphene, Total Leachable	ug/l	<24				SCP	06/13/89	10:50	25	87	NA

SUPPLEMENT INFORMATION:
Analyses conducted in accordance with 40 CFR, Part 261, November 1986, "Test Methods for Evaluating Solid Waste" (SW-846).

SAMPLE DESCRIPTION:	COLLECTION DATE/TIME:
10184.00 SOIL SAMPLE #3 FOR LEACHABLE PARAMETERS	06/01/89 06/01/89 UNK

CERTIFICATION:

L.R. Hudnall
Quality Assurance and Quality Control

John Broussard
Analytical and Bio-Analytical Services

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 677 981 802

RECEIVED
DEC 28 1988
Dept. of Natural Resources
Bureau of Pollution Control

Mr. Steve Spengler, P.E.
Coordinator - TSD Branch
Hazardous Waste Division
Bureau of Pollution Control
2380 U.S. Highway 80 West
Jackson, Mississippi 39209

December 21, 1988

Subject: Cedar Chemical, Vicksburg Chemical Division
South Pond Closure and Retrofit Post-Closure Activities

Dear Mr. Spengler:

As we discussed by telephone December 19, 1988, Vicksburg Chemical desires to modify the current groundwater monitoring program it operates at the Vicksburg facility. We currently sample and analyze fourteen wells for total arsenic, methylene chloride, toxaphene and dinitro-butylphenol on a quarterly basis.

We wish to reduce the frequency of sampling from quarterly to bi-annually with the exception of Well No. 1A. Additionally, we wish to discuss the elimination of wells which may be redundant for sampling purposes and wish to discuss which parameters are appropriate for future monitoring.

As groundwater monitoring activities influence the post-closure care cost estimate, we would very much like to meet with you to discuss the details involved in calculating the required amount of funding to be held in trust and for what period.

Please advise if January 17, 1989, is a convienient date to meet and discuss these items. Thank you for your consideration.

Sincerely,

Steven T. Boswell

Steven T. Boswell
Director of Env. Affairs

STB: pc

xc: Mr. Ahlers
Mr. Madsen
Mr. Malone

FILE COPY

October 18, 1988

Mr. Steven Boswell
Cedar Chemical Corporation
Vicksburg Chemical Division
P. O. Box 3
Vicksburg, Mississippi 39180

Re: Closure/Retrofit Plan
Surface Impoundment System
Submitted August 4, 1988
EPA ID No. MSD990714081

Dear Mr. Boswell:

The Bureau has completed its review of the Closure/Retrofit Plan for the surface impoundment system at your Vicksburg facility, submitted to this office on August 4, 1988. We have also reviewed International Technology Corporation's (IT) August 30, 1988, response to comments made on the plan during the meeting between representatives of the Bureau and Vicksburg Chemical on August 30, 1988.

As we have discussed, our review of this closure plan has not been made to ensure compliance with RCRA closure requirements for surface impoundments and therefore the closure may not meet the RCRA closure standards. However, the Bureau concurs that this plan would constitute an environmentally sound closure provided that the following changes are made:

1. The changes in the plan proposed in IT's August 30, 1988, letter are incorporated into the plan, including;

   a) The equipment decontamination criteria and procedures as described in the first response in IT's letter.

   b) Whenever the Action Leakage Rate (ALR) of 20 gallons per acre per day is exceeded, Vicksburg Chemical submits a Response Action Plan to the Bureau within 90 days from the time VCC determines the rate has been exceeded.

   c) Post-closure care of the cover for the Solid Waste Consolidation Area (SWCA) including groundwater monitoring be conducted for a minimum of 30 years.

2. VCC should sample the soils left in place beneath the liners and the leachate collection and detection systems to determine the levels of contamination left in place that might impact the groundwater. The parameters analyzed for should at a minimum include arsenic, toxaphene, atrazine, bladex, dinoseb, and methyl parathion. Samples should be analyzed for both total concentrations of these parameters and using EP Toxicity Procedures.

3. VCC should determine the source of groundwater contamination detected in wells MW-1, MW-1A, and MW-15.

4. The post-closure cost estimate should include costs for anticipated well replacement or repair.

5. VCC's current trust agreement providing financial assurance for closure and/or post-closure should be fully funded to cover the entire amount of post-closure. These funds should not be used to reimburse VCC for costs incurred during closure.

6. VCC determine the leakage rate of the liner systems at least weekly.

If you have any questions, please contact me at 961-5171.

Sincerely,

Wm. Stephen Spengler, P.E.
Coordinator - TSD Branch
Hazardous Waste Division

WSS:mes
cc: Mr. James H. Scarbrough, EPA, Region IV

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209
(601) 961-5171

MEMORANDUM

FILE COPY

TO: Vicksburg Chemical File

FROM: Jack McCord

SUBJECT: Closure Plan for Surface Impoundment

DATE: August 22, 1988

On this date, I met with Steve Boswell of Vicksburg Chemical Corporation (VCC) to discuss questions I had concerning the closure plan for their surface impoundment. VCC would like to bid out the closure in the next two weeks. I informed Mr. Boswell that it would be extremely unlikely that the Bureau would issue any formal opinion that the closure complies with all RCRA standards within the next few months. I also informed Mr. Boswell that by closing without formal approval VCC was risking a possible future action by EPA that could rule the closure was inadequate by RCRA standards.

During the meeting I expressed concern about the following elements of the closure plan:

1. VCC did not state what levels of contamination would be used for determining if equipment used during closure had been successfully decontaminated.

2. The proposed post-closure care period of only three years is entirely inadequate.

3. Neither the text or drawings in the closure plan make clear the number or location of the gas vents.

4. The equalization culverts that would penetrate the liners and connect the differing cells of the surface impoundment represent a significant potential for liner failure.

5. VCC fails to specify the levels of leachate generation that would trigger an investigation of possible liner failure and liner repair.

6. VCC does not address the potential for liner degradation due to exposure to sunlight.

7. VCC should explain why it will be necessary for the HDPE valve stem casing that provides access to the culvert gate valve to penetrate the liner.

8. The high level alarm in the leachate collection/leachate detection sump should be set so that the alarm would sound prior to the leachate backing up into the collection system.

9. VCC should specify the level of leachate collected in the sump that would activate the submersible pump.

I also expressed the concern that the proposed depth of the surface impoundment combined with the slickness and the steep slope of its side could pose a safety hazard at the site.

Mr. Boswell said he thought they could address all of my concerns with the possible exception of the equalization culverts. He would get with his consultants and make the necessary changes as quickly as possible.

JM:lr

RECORD OF TELEPHONE CONVERSATION

Name of firm or party: Cedar Chemical; Vicksburg Chemical Division

Address: Vicksburg

Contact: Steve Boswell

Phone: 636-1231

I talked to Steve Boswell about VCC's closure and retrofit plan for their surface impoundment. During our conversation I made the following suggestions:

1. VCC should incorporate IT's responses to my comments that involve changes in the closure plan in to the closure plan.
2. VCC needs to document the amount and concentrations of the residual contaminants that will be left in place beneath the liners after closure. Along with a totals analysis for pesticides, they should also run EP-Tox for toxaphene.
3. VCC still needs to identify the source of groundwater contamination in wells 15 (plugged) and 1A.
4. For this to be an environmentally sound closure, there should be some financial assurance for post-closure. VCC still has a trust fund, but I'm uncertain if they are still paying into it or if the Bureau really has legal access to it.

Jack McCord
Signature

9-26-88
Date

August 10, 1988

FILE COPY

Mr. James R. Scarbrough, P. E., Chief
RCRA Branch
U. S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Scarbrough:

Re: Cedar Chemical's Surface
Impoundment Closure Plan

Enclosed for your review is one copy of Cedar Chemical's closure plan for the surface impoundment at their Vicksburg facility. It is our intent to closely coordinate with the Region in our review of this document.

If you have any questions regarding activities at this facility, please contact Jack McCord of my staff at (601) 961-5171.

Sincerely,

Wm Stephen Spengler, P. E., Coordinator
TSD Branch, Hazardous Waste Division

WSS:JM:cm
Enclosure

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209
(601) 961-5171

MEMORANDUM

TO: Vicksburg Chemical (VCC) File

FROM: Jack McCord

THROUGH: Steve Spengler

SUBJECT: Status of Work Being Done at Vicksburg Chemical

DATE: July 15, 1988

Today, I spoke to Steve Boswell concerning the work being done at Vicksburg Chemical. During our telephone conversation Steve made me aware of the following items:

1. He had not yet received our letter granting a 30 day extension for their drums of mixed dinoseb and sulfuric acid wastes. However, they were expecting Cecos to approve the waste stream next week and be able to dispose of the waste shortly. They have received non-reacting drum liners and expect to receive 70 new drums on Monday. If Cecos does not approve the waste stream VCC will be able to repackage the waste for shipment anyway.

2. The wells and piezometers VCC proposed to remove in the letter dated June 21, 1988, have been removed and plugged. A new well has been added also as proposed in the letter. VCC will be submitting a plan for adding this well to their sampling and analysis plan.

3. VCC has recently changed primary contractors for finalizing their closure plan. The new contractor is IT Corporation. Although they are still about 1 month behind they are now making substantial progress.

4. They will be shipping the drums out of their returned product storage area to Chem Waste Management within the next couple of weeks. They will then rent a cement grinder and try and make some more progress on cleaning the floors both there and in the hazardous waste storage area. They ultimately would like to establish a new less than 90 day drum storage area in a more secure place.

JM:els
cc: Mr. James Scarbrough, EPA

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

RECEIVED
JUL - 6 1988
Dept. of Natural Resources
Bureau of Pollution Control

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 677 981 857

July 5, 1988

Mr. Sam Mabry, Director
Mr. Steve Spengler
Mr. Jack McCord
Division of Hazardous Waste
Mississippi Department of Natural Resources
P.O. Box 10385
Jackson, Mississippi 39209

Subject: Vicksburg Chemical Plant, Surface Impoundment Closure

Gentlemen:

This letter is sent to inform you that is has become necessary for Vicksburg Chemical to select a replacement design engineering firm for the construction of the retrofit of a double liner and sludge disposal cell in the surface impoundment at the Vicksburg Facility. This obviously will cause a delay in submitting the final construction plans for your review.

The current work on the design has entailed determination of the volume of material to be solidified, determination of material to be used for pozzolanic stabilization and predicting the resulting volume of the stabilized material. Site plan drawings have been prepared including one-foot contour mapping and pond bottom contours. Soil borings have been taken in the center dike to determine its ability to withstand hydraulic loading during the sequential dewatering and lining process. A review of the pond's dike construction has been done and plans for inspection during construction are being prepared. With the already available data, the newly selected engineering firm will be able to produce the final design in a shorter period that otherwise.

We regret the delay at this late date, but believe that it is a necessary step we must take in order to assure the proper outcome of this undertaking. We now estimate having plans ready for review by August 1, 1988.

Please contact me with any questions you may have.

Sincerely,

Steven T. Boswell

Steven T. Boswell
Director of Env. Affairs

STB: pc

xc: Mr. Ahlers
Mr. Madsen
Mr. Malone

FILE COPY

June 20, 1988

Mr. Allen T. Malone
Apperson, Crump, Duzane, & Maxwell
Attorneys at Law
100 North Main Building
20th Floor
Memphis, Tennessee 38103

Dear Mr. Malone:

Re: Cedar Chemical Corporation
MSD990714081
Vicksburg, Mississippi

As you are probably aware, the Bureau of Pollution Control has received preliminary information regarding the proposed closure of the surface impoundment at Cedar Chemical Corporation. As discussed with the company we are withholding formal comments until such time as we receive a complete submittal. Upon receipt of the Closure Plan referenced in your letter of June 1, 1988, we intend to make a timely review with comments to the facility. We will also forward a copy of the Closure Plan to EPA Region IV for their review. However, based upon our discussions with Region IV we do not expect that EPA will provide formal comments to the Bureau on the Closure Plan.

Due to the Mississippi Commission on Natural Resources ruling on August 5, 1987, the Bureau will not bring the closure plan before the Permit Board for approval as a formal RCRA closure. However, the Bureau will provide comments on the closure plan's technical merits using RCRA requirements as guidance. Although the Bureau is not regulating Cedar Chemical's surface impoundment as a RCRA hazardous waste unit, we will continue to work with the facility to ensure that the impoundment is closed in an environmentally safe manner.

If you have any questions feel free to contact me at (601) 961-5171.

Sincerely,

Sam Mabry, Chief
Hazardous Waste Branch

SM:JBM:sae
cc: Fred Ahlers, Vicksburg Chemical
Jim Scarbrough, U.S. EPA Region IV

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1896-1985

CHARLES METCALF CRUMP
JERRE G. DUZANE
JOHN B. MAXWELL, JR.
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901/756-6300

June 1, 1988

RECEIVED
JUN - 6 1988
Dept. of Natural Resources
Bureau of Pollution Control

Mr. Sam Mabry, Director
Mr. Steve Spangler
Mr. Jack McCord
Division of Hazardous Waste
Mississippi Department of
Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

Re: Vicksburg Chemical Plant/Surface Impoundment

Gentlemen:

I have been requested by management of Cedar Chemical Corporation to document in this letter the Company's intentions with regard to the Surface Impoundment which was the subject of hearings before the Mississippi Commission on Natural Resources in 1986 and 1987 (Commission Orders 1153-86 and 1253-87). As you know, consistent with the Commission's Orders, the Company has continued to use the Surface Impoundment to accept non-hazardous waste water generated by plant operations as well as storm water run-off, which wastes are treated and discharged pursuant to the Company's NPDES Permit.

Last November, a Jackson newspaper reported that EPA was displeased with the Commission's determination that the Surface Impoundment is not subject to regulations applicable to hazardous waste treatment, storage and disposal facilities. The same article, quoting the Regional Administrator for EPA, Region IV, indicated that EPA was pursuing legal action against Cedar. Primarily as a result of this article, we requested a meeting with EPA, to which representatives of the Bureau were invited. Representatives of Cedar met with Allyn Antley and other EPA representatives in Atlanta on December 17, 1987, to discuss the regulatory status of the Vicksburg Plant, including the results of EPA's RCRA inspection of the Plant in February, 1987.

At our meeting in Atlanta, we explored briefly whether EPA would object to a Closure Plan for the Surface Impoundment involving consolidation and capping sludges in place while using the remainder of the unit to continue accepting treating and discharging non-hazardous wastes. Mr. Antley stated that such a plan is not necessarily inconsistent with RCRA requirements, but indicated that it is the Bureau's function to pass on any proposed closure plan.

On February 11, 1988, Fred Ahlers, Steve Boswell and I met in your offices to discuss conceptual plans for closure of the Impoundment along the lines suggested in our meeting in Atlanta last December and confirmed in my letter of January 26, 1988 to Art Prestage. We were encouraged to proceed with development of a closure plan outlined at the meeting. Subsequently, Cedar has submitted conceptual drawings; there have been a number of meetings and conversations between Steve Boswell and Bureau personnel to refine the Closure Plan; and detailed drawings and work plans for the proposed closure are scheduled to be presented to you the third week of June, 1988.

This letter is to assure you that Cedar's management is committed to implement the proposed Closure Plan which you will review later this month, provided that the plan receives final approval by your office, and assuming that EPA Region IV is in accord. Jim Scarbrough's letter of February 5, 1988 requested that the Company's submissions be closely coordinated with his office. I assume that is happening. For obvious reasons the Company is reluctant to implement its proposed Closure Plan at a cost estimated by the Company to exceed $1,500,000, unless we have a high degree of comfort that EPA will not attempt to block the Company from continuing to use the unit for acceptance, treatment and discharge of non-hazardous wastes, once the plan has been implemented. If the Company can obtain such assurances promptly, we expect that the closure can be completed, as proposed, by November of this year. Accordingly, we respectfully request that you expedite review of the proposed Closure Plan and furnish us with the Bureau's position as well as the position of Region IV as soon as possible after the plan has been submitted.

Sincerely yours,

Allen T. Malone

ATM:jw

cc: Mr. J. Arthur Prestage
Ms. Zylpha K. Pryor

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

CERTIFIED MAIL
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P 113 213 031

RECEIVED
MAR 15 1988
Dept. of Natural Resou...
Bureau of Pollution Control

Mr. Charles Estes, P.E.
Division of Solid Waste Management
Hazardous Waste Section
Bureau of Pollution Control
2380 U.S. Highway 80 West
Jackson, Mississippi 39209

March 14, 1988

Dear Mr. Estes:

Confirming our telephone conversation of today March 14, 1988, Cedar has retained the services of Ware Lind Furlow, Inc., ERT, Inc., and SLC Consultants/Constructors to both evaluate the possibility of retro-fitting the South Pond at the Vicksburg facility and to design that installation.

We had, in our original meeting in February, intended a meeting by this date to present initial findings. There has been slippage in this schedule due to the need for survey work in the area of the pond. Aerial surveys will be flown this week, and we hope to be able to present initial findings by March 31.

Please call me if there questions or difficulties with that date.

Sincerely,

Steven T. Boswell

STB: pc

Steven T. Boswell
Director of Env. Affairs

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

FEB 0 5 1988

4WD-RCRA

Mr. Sam Mabry, Director
Hazardous Waste Division
Bureau of Pollution Control
Mississippi Department of Natural
Resources
P. O. Box 10385
Jackson, Mississippi 39209

Dear Mr. Mabry:

This letter is to confirm our position on Vicksburg Chemical Company as discussed with you and your staff and Allan Antley, Beverly Foster, and Jason Darby of my staff on February 4, 1988.

We agree in substance with the letter sent you by the company's counsel. That is, they are encouraged to seek technical assistance from the State regarding a "voluntary" submission of a closure plan designed to meet the Resource Conservation and Recovery Act (RCRA) standards for a regulated facility. We would like any such submission and review to be closely coordinated with the Region.

Due to the legal issues posed by the Commission's decision not to regulate this facility, the State appears to be barred from formal closure plan public notice and post-closure permit issuance. However, if the company voluntarily rescinds its "non-regulated" status or otherwise becomes regulated, the up-front technical work and actual field implementation would already be on-going and would expedite formal closure plan public notice and permit processing.

Thank you for working with us. We stand ready to assist you as requested. If you need further contact on the closure issues, please contact Beverly Foster, Chief, AL/MS Unit, Waste Engineering Section at (404) 347-3433. For information regarding compliance, please contact Allan Antley, Chief, Waste Compliance Section at (404) 347-7603.

Sincerely yours,

James H. Scarbrough

James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1896-1985

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JERRE G. DUZANE
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TONI CAMPBELL PARKER
J. KEITH McCORMIC
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SAMUEL RUBENSTEIN
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January 26, 1988

RECEIVED
FEB 1 1988
ATTORNEY GENERAL'S OFFICE

Mr. J. Arthur Prestage
Special Assistant Attorney General
Office of the Attorney General
Carroll Gartin Justice Building
Post Office Box 220
Jackson, Mississippi 39205-0220

Re: Cedar Chemical Corporation
Vicksburg Plant

Dear Art:

As you know from our meeting last month in Atlanta with Allan Antley and other EPA personnel, it is the position of Region IV that it is up to the Bureau of Pollution Control to approve any closure plan with regard to the subject Surface Impoundment.

The purpose of this letter is to request a meeting next week at the Bureau of Pollution Control to attempt to reach an agreement on a conceptional plan for closure of the Surface Impoundment at the Vicksburg Plant which has been under discussion for some time. Specifically, Cedar would like to explore the possibility of a closure plan that would permit consolidation of pond sediment into one section of the existing pond followed by dewatering, fixation and capping the pond sediment in place in a manner that would permit the company to continue using the remainder of the pond for receipt and discharge of non-hazardous waste streams pursuant to its NPDES Permit. Allan Antley indicated at our meeting that there are various closure alternatives available, including dewatering and capping the pond in place.

I still have no idea what, if any, action EPA intends to take with respect to the Commission's Order last year. I am enclosing a copy of a letter from Zylpha Pryor which doesn't really tell me anything. In any event, I can see no disadavantage in beginning to explore a closure plan intended to be equivalent to closure of a hazardous waste facility pursuant to the RCRA regulations, even though the pond is not classified as a facility required to meet such regulations. Regardless of the likelihood that EPA would initiate an action that might ultimately overturn the Commission's ruling of last year, Cedar could determine independently that it would be desirable to take remedial action with respect to the pond sediments to further assure that there will be no future releases of wastes or pollutants. In fact, if an agreement on a conceptional plan can be reached, Cedar is prepared to commission an environmental engineering firm to prepare a detailed plan with drawings and schematics of the type that would normally need to be submitted in connection with the closure of hazardous waste facilities under RCRA.

Please let me know if the people at the Bureau who would be responsible for approval of a closure plan would be willing to sit down with Steve Boswell and me next week to try to reach conceptional agreement on a mutually acceptable closure plan. That, incidentally, was the reason that I left a message for you to call me last week.

Sincerely yours,

Allen T. Malone

ATM:jw

cc: Mr. Steve Boswell

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JAN 14 1988

Allen T. Malone, Esquire
Apperson, Crump, Duzane & Maxwell
26th Floor
100 North Main Building
Memphis, Tennessee 38103

Re: Vicksburg Chemical Facility
Vicksburg, Mississippi

Dear Allen:

We are always willing to meet with facility representatives to discuss any matters of concern. I trust that the December 17th meeting was informative for you and clarified EPA's position regarding Vicksburg Chemical's regulatory status.

While the practical effect of EPA's efforts regarding your facility could result in an overturn of the Mississippi Commission's ruling, that is not our primary objective. More exactly, we are seeking to enforce the regulations governing Mississippi facilities. To that end, we continue to evaluate data on Vicksburg Chemical and consider enforcement alternatives. EPA representatives will remain available to discuss compliance issues with the facility regardless of our enforcement posture.

Some of the factual allegations contained in your letter require a response as they are points of contention. Briefly, we cannot concede that the presence of the surface impoundment is yielding positive environmental benefits. The fact that its closure would result in expenses and hardship to the facility cannot permit EPA to overlook the long-term negative environmental and regulatory impact of its remaining open. The status and regulation of Vicksburg Chemical Company deserve and are receiving high priority attention from EPA - Region IV.

Additionally, EPA cannot concede that only wastes covered by the de minimis exclusion have been placed into the surface impoundment. Preliminary review by EPA indicates that three hazardous wastes have been treated, stored or disposed of in the impoundment. Those wastes are designated by hazardous waste numbers K041, K098 and P020. Finally, future review of material may reveal additional wastes managed in the impoundment.

I appreciate Steve Boswell's continued efforts to secure piping diagrams and the information responsive to Jeaneanne Gettle's questions. I will certainly apprise you of EPA's need for additional information from Vicksburg Chemical.

Sincerely yours,

Zylpha K. Pryor
Assistant Regional Counsel

cc: Jeaneanne Gettle

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JAN 28 1988

RECEIVED
FEB 2 - 1988
ATTORNEY GENERAL'S OFFICE

REF: 4WD-RCRA

J. Arthur Prestage
Special Assistant Attorney General
Office of Attorney General
Carroll Gartin Justice Building
P.O. Box 220
Jackson, Mississippi 39202-0220

RE: Comments concerning HSWA 3004(t), 3005(e), 3005(a) 3006(f), and 1004(22) statutory equivalence

Dear Mr. Prestage:

The Environmental Protection Agency's (EPA) Review Team has completed its review of Mississippi's response to our comments regarding Mississippi's analogs to HSWA 3004(t), 3005(a), 3005(e), 3006(f), and 1004(22). The review indicated that no statutory modifications will be required regarding the above State analogs as long as the Attorney General provides appropriate explanation and certification of equivalence when a program revision application is submitted.

EPA will continue to assist the Attorney General's Office and the Bureau of Pollution Control in addressing any future delegation issues and in the pursuit of HSWA authorization.

Sincerely yours,

Lee A. DeHihns III

Lee A. DeHihns, III
Acting Regional Administrator

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1896-1986

CHARLES METCALF CRUMP
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December 21, 1987

RECEIVED
FEB - 4 1988
Dept. of Natural Resources
Bureau of Pollution Control

Ms. Zylpha K. Pryor
Assistant Region Counsel
Hazardous Waste Law Branch
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Vicksburg Chemical Plant
Vicksburg, Mississippi

Dear Zylpha:

We appreciate the time which you, Allan Antley, Doyle Brittain and others in your office took to meet with us last week to discuss the Surface Impoundment in use at Cedar Chemical's Vicksburg Plant. I remain concerned that EPA is considering efforts to overturn the determination of the Mississippi Commission on Natural Resources to the effect that the Surface Impoundment is not a regulated unit under RCRA as promulgated in the State of Mississippi. I was relieved, however, that data developed to date do not suggest to EPA that conditions at the site present any hazard of the type which would call for action under RCRA Section 7003. Cedar's consultants certainly share that view.

The purpose of this letter is to confirm our offer to assist in the generation of information of the type that might otherwise be sought under RCRA Section 3013. Specifically, although Mississippi's Bureau of Pollution Control was provided complete information on past operations relative to the Surface Impoundment at the Vicksburg Plant, including all available piping diagrams, Steve Boswell is currently making inquiries to determine if additional information is available that would be responsive to the specific questions raised by Jeaneanne Gettle at our meeting (pertaining to past operation and plugging of sumps, as well as the possible existence of a ditch with liquid material flowing from the area of the closed-out landfill.)

Investigation to date has indicated clearly that no hazardous wastes (other than those covered by the de minimis exception to the mixture rule) have been discharged to the Impoundment by former owners and operators of the Vicksburg Plant at any time subsequent to the effective date of the RCRA regulations. While I realize that EPA disagrees with the Mississippi Commission's ruling on the scope of the K098 and K041 hazardous waste listings, I continue to hope that Region IV has more important issues to litigate than this one - particularly inasmuch as the presence of the Surface Impoundment affords positive environmental benefits which its closure would eliminate, not to mention the substantial expense and hardship which such a closure would involve.

If there is additional information which either EPA or the Mississippi Bureau of Pollution Control might be interested in obtaining, whether pursuant to RCRA Section 3013 or otherwise, please notify me.

Sincerely yours,

Allen T. Malone

ATM:jw

cc: Mr. Art Prestage
Mr. Steve Boswell

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209
(601) 961-5171

M E M O R A N D U M

FILE COPY

TO: Vicksburg Chemical File

FROM: Jack McCord

SUBJECT: Vicksburg Chemical Sludge Sampling Results

DATE: June 1, 1987

The attached is analytical data on Vicksburg Chemical's impoundment sludge, hand delivered to the Bureau on May 26, 1987. The data is a combination of data obtained by both the Bureau and Vicksburg Chemical and is the data that Vicksburg Chemical would stipulate to at the May 27, 1987 hearing.

JMc:hdb
Attachment

DIVISION OF SOLID WASTE
REVIEWED BY DM
DATE
COMMENTS sent to
EPA 11-16-87

Laboratory Number	Sample Marked	Toxaphene
726,113	A	334 ~~ppm~~
726,114	B	244
	EP EXT	ND @ 0.004
726,115	C	167
726,116	D	322
726,117	E	487
726,118	F	56
	EP EXT	ND @ 0.1
	F TCLP	ND @ 0.04
726,119	G	62
726,120	H	6.3
726,121	I	84
726,122	J	18.1
	EP EXT	ND @ 0.04
726,123	K	1.8
726,124	L	1.2
726,125	M	ND @ 1
726,126	N	ND @ 1
726,127	O	ND @ 1
726,128	P	22
726,129	Q	29
726,130	R	4.6
726,131	S	42.9

Results Reported in parts per Million —

Well Samples	Analysis for Toxaphene
87053026 - Location 1A	<0.24
87053027 - Location 2	<0.24
87053028 - Location 4	<0.24
87053029 - Location 5	<0.24
87053030 - Location 6	<0.24
87053031 - Location 8	<0.24
87053032 - Location 9	<0.24
87053033 - Location 10	<0.24
87053034 - Location 11	<0.24
87053035 - Location 12	<0.24
87053036 - Location 14	<0.24
87053037 - Location 15	<0.24

Results reported in mg/L

Cedar Chemical Corporation, Vicksburg

In 1986, Cedar Chemical, Vicksburg, filed a petition with the Commission contending that the Company's surface impoundment is not properly designated as a hazardous waste facility and is not subject to the hazardous waste regulations. Specifically, the Company argued that past use of the surface impoundment as a catchment basin for storage, treatment, or disposal of spills in connection with production of pesticides at the Vicksburg plant constitutes "de minimus" losses.

This matter was heard on September 16, 1986, where evidence was presented relating to the pesticide Dinoseb (DNBP). At its December 17, 1986, meeting the Commission ruled that the impoundment was not regulated for purposes of Dinoseb. However, it determined that the question of whether it was regulated for purposes of another pesticide formerly manufactured at the plant, Toxaphene, had not yet been determined. The Commission on that date issued Order No. 1153-86, incorporating the ruling on Dinoseb. The Order additionally provided that a subsequent hearing would be set to determine whether the surface impoundment is regulated because of Toxaphene-related wastes, after the Bureau of Pollution Control staff and the Company had developed their arguments.

The purpose of this hearing today is to hear the arguments relating to the Toxaphene waste streams so that the Commission can make a final determination as to whether the impoundment is covered under the hazardous waste regulatory program.

CC:els

DIVISION OF SOLID WASTE
REVIEWED BY SM
DATE 5-27-87
COMMENTS

MISSISSIPPI

Department of Natural Resources
Bureau of Pollution Control
Division of Solid Waste Management
P.O. Box 10385
Jackson, Mississippi
39209

Sam Mabry *	Director, Division of Solid Waste Management, Superfund Superfund	601/961-5062
Chuck Estes	Coordinator, Hazardous Waste Section	

Telecopy Number:

DIVISION OF SOLID WASTE
REVIEWED BY Received 5-1-87
DATE 5-19-87
COMMENTS
Sent to GA 11-16-87

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 19 1987

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Regulatory Determination With Respect to Cedar Chemical Corporation (formerly Vicksburg Chemical Corporation) Located in Vicksburg, Mississippi

FROM: Matthew A. Straus, Chief Matthew A. Straus
Waste Characterization Branch

TO: James E. Scarborough, Chief
Residuals Management Branch, EPA Region IV

This memorandum is in response to your request that a regulatory interpretation be made as to whether Vicksburg Chemical Corporation's (VCC) facility in Vicksburg, Mississippi [now operated by Cedar Chemical Corporation] 1/ generated EPA Hazardous Waste Nos. K098 (Untreated Process Wastewater from the Production of Toxaphene) and K041 (Wastewater Treatment Sludge from the Production of Toxaphene) after November 19, 1980; in addition, you also asked whether VCC's on-site surface impoundments are subject to regulation under the hazardous waste rules. Based on all the materials reviewed (see Attachment A for list of documents) and my visit to VCC's facility on January 23, 1987, I believe that VCC generated EPA Hazardous Waste Nos. K098 and K041 after November 19, 1980. In addition, I have determined that the surface impoundments located at VCC's facility in Vicksburg, Mississippi are subject to the hazardous waste regulations. The remainder of this memo explains the basis for my decision and responds to a number of statements made by Mr. Fred Ahlers, Plant Manager at VCC's Vicksburg facility, Mr. Allen T. Malone, who is representing Cedar Chemical Corporation, and Mr. Gary Dietrich, Senior Vice President of ICF Technology, who is also representing the Cedar Chemical Corporation. (It should be noted that since some of the material contained in this memorandum is obtained from documents marked as confidential, the memorandum must be handled as confidential.)

1/ Throughout this memorandum, I will refer to this facility as the Vicksburg Chemical Corporation (VCC) facility even though it is now operated by the Cedar Chemical Corporation.

DESCRIPTION OF PROCESS AND WASTE GENERATED 2/

Toxaphene was produced at VCC's facility in Vicksburg, Mississippi until October, 1982. In the manufacturing process, purchased camphene was chlorinated in the presence of a solvent to produce toxaphene. (See Figure 1 for block flow diagram of the toxaphene process.) The toxaphene produced from the reactor was then diluted and sold as a 90 percent product.

As a part of the reaction step, a hydrogen chloride/solvent mixture was generated. This mixture was separated; the solvent that was recovered was reused, while the hydrogen chloride was sent to an acid recovery system. The hydrogen chloride that was reclaimed was dissolved in water and sold.

The "waste streams" that were generated in this process are spills and leaks from various parts of the manufacturing process and a dilute hydrogen chloride waste from the acid recovery system. These wastes were discharged to the on-site surface impoundments; these wastes were then sent through an activated carbon filter and then discharged to the Mississippi River under an NPDES permit.

BASIS FOR DECISION

In determining that VCC's facility in Vicksburg, Mississippi generated EPA Hazardous Waste Nos. K098 and K041 after November 19, 1980, a number of key points had to be addressed. In particular: (1) what unit processes are part of the toxaphene manufacturing process; (2) was a "wastewater" generated from the toxaphene manufacturing process; and (3) were the on-site surface impoundments part of the wastewater treatment system. (The first two questions apply to EPA Hazardous Waste No. K098 (untreated process wastewater) while the third question addresses EPA Hazardous No. K041 (wastewater treatment sludge).

2/ The description of VCC's toxaphene manufacturing process is taken from several documents supplied by Ceder Chemical Corporation or their representatives.

(1) What unit processes are part of the toxaphene manufacturing process?

The issue is whether the acid recovery system is part of the toxaphene manufacturing process or whether it is a completely separate process? (See letter dated January 23, 1987, from Gary Dietrich to Matthew Straus where it states, "The muriatic acid recovery system associated with the toxaphene manufacturing process did generate a scrubber wastewater, but I contend that this was not as "untreated process wastewater from the production of toxaphene" as defined by the K098 listing. Rather, it was a wastewater generated by an entirely separate unit process (i.e., the muriatic acid recovery process.")

First, in reviewing the actual regulation, the listing language itself is not limited to any steps in the production process; thus, any wastewater that comes from any of the steps in the production of toxaphene are covered by the listing. Where the Agency wished to limit itself, it has used listing descriptions limited to wastes from a particular process step. By not doing it here, the Agency intended no such limits. See, e.g., EPA Hazardous Waste No. K097 (Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane); EPA Hazardous Waste No. K073 (Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production); and EPA Hazardous Waste No. K033 (Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane). The listing here (K098) is not limited to "wastewater from the chlorination of camphene in toxaphene production." Moreover, based on a review of the listing background document (LBD) for the toxaphene listings, a review of the various blockflow diagrams of the toxaphene manufacturing process, and based on a number of statements made by a Mr. Fred Ahlers of Cedar Chemical (and cited on the next page), I have determined that the acid recovery system is an integral part of the toxaphene manufacturing process. More specifically, the LBD for the toxaphene listings, in describing the wastes generated by this process, specifically includes the wastes generated by the acid recovery system (see page 5, last paragraph of the LBD where it states, "At Vertac's Vicksburg plant, the toxaphene containing process wastewater stream seem to be the bleed stream from the caustic soda scrubber for off-gas cleanup in the HCl absorption and recovery step..., along with residual toxaphene from past spills..."). Thus, the support documentation to the toxaphene listings which Cedar Chemical Corporation personnel (and their representatives) has reviewed makes it clear that the acid recovery system is a part of the toxaphene manufacturing process. In addition, in reviewing the various blockflow diagrams (e.g., flow diagram contained on page 4 of the LBD; flow diagram provided by Cedar Chemical Corporation in Attachment J to their letter dated November 10, 1986, to Sam Mabry, Director, Division of Hazardous Waste, Mississippi Department of Natural Resources (DNR) from Fred Ahlers, Plant Manager at VCC's Vicksburg facility; and the flow diagram contained on page 40 of the Report Wastewater Treatment Technology Documentation for Toxaphene Manufacture), I find that these sources include the acid recovery step as part of the toxaphene manufacturing process. This point is further supported by several statements made by a representative of the Cedar Chemical Corporation. In particular:

- The November 10, 1986, letter from Fred Ahlers to Sam Mabry indicates (on page 2) that 10,744 tons of by-product, Muriatic Acid (HCl) were produced between November, 1980 through October, 1982 at the Toxaphene facility; this statement strongly supports the argument that the acid recovery step is a part of the toxaphene manufacturing process.

- The November 10, 1986, letter from Fred Ahlers to Sam Mabry states (on page 6) that, "In fact, the only "waste streams" associated with toxaphene production at the Vicksburg Plant would have consisted of any de minimis losses associated by minor leaks and spills, and scrubber water generated from operation of the Plants air emission control procedures in connection with its HCl recovery system (muriatic acid or HCl being a by-product of the toxaphene production process).

(2) Was a "wastewater" generated from the toxaphene manufacturing process?

Several of the documents that I reviewed (which are cited in this paragraph) stated that no process wastewater is generated from the production of toxaphene (see, for example, Attachement J to the November 10, 1986, letter from Fred Ahlers to Sam Mabry where it states, "There was no process wastewater from the production of Toxaphene nor was there any wastewater treatment sludge generated in the Vicksburg Toxaphene Process" and page 41 of the Report Wastewater Treatment Technology Documentation for Toxaphene Manufacture where it states, "Toxaphene produces no liquid wastewater,..."). I believe these statements are in error. There is a wastewater stream from the production of toxaphene, although there is not a continuous process stream coming form the chlorinator (i.e., where camphene is reacted with chlorine).

In dealing with this question, however, one must first determine what is meant by the term "wastewater." Under the hazardous waste rules, the Agency has not specifically defined the term wastewater. However, wastewater has been defined in the effluent guidelines and standards regulations. In particular, a process wastewater means "any water which, during manufacturing or processing comes into direct contact with or results from the production or use of any material, intermediate product, finished product, or product. See 40 CFR 401.11(q). Since a wastewater stream is generated from the toxaphene manufacturing process (i.e., scrubber water from the acid recovery system--see previous subparagraph for a discussion of this point) and since this water stream contains various pollutants as well as comes into direct contact with various materials used in the toxaphene manufacturing process, a wastewater stream was generated at VCC's toxaphene manufacturing process at their plant in Vicksburg, Mississippi. This point appears to be substantiated in reviewing VCC's permit application for their NPDES permit (Attachment A to the November 10, 1986, letter from Fred Ahlers to Sam Mabry) where it states (on page 6) that the average flow of wastewater from the Toxaphene Plant to both outfalls #1 and #3 is 0.005 million gallons per year.

FOR ALL OF THE ABOVE REASONS, THE LISTED WASTE (EPA HAZARDOUS WASTE NO. K098-UNTREATED PROCESS WASTEWATER FROM THE PRODUCTION OF TOXAPHENE) WAS GENERATED AT VCC's FACILITY IN VICKSBURG, MISSISSIPPI. IN ADDITION, SINCE THIS LISTED

HAZARDOUS WASTE WAS DISCHARGED TO THE SURFACE IMPOUNDMENTS LOCATED AT VCC's FACILITY IN VICKSBURG, MISSISSIPPI, THE SURFACE IMPOUNDMENTS ARE SUBJECT TO REGULATION UNDER THE RCRA HAZARDOUS WASTE PROGRAM.

(3) Are the on-site surface impoundments part of the wastewater treatment system?

Another issue is whether the on-site surface impoundments are used to treat the wastewater and thus, generate and store EPA Hazardous Waste No. K041 (Wastewater treatment sludge from the production of toxaphene). Based on the information provided by Cedar Chemical and their representatives, I have determined that the on-site impoundments are used as part of the wastewater treatment system (i.e., are used to treat the wastewater). In particular, in the report "Wastewater Treatment Technology Documentation for Toxaphene Manufacture," it indicates (on page 42) under the subheading Wastewater Treatment that the effluent from the toxaphene process at the Vicksburg facility is "discharged to a final neutralization and settling pond located on-site..." Under the definition of treatment in the RCRA hazardous waste program, both neutralization and settling are considered treatment. Thus, the impoundments are used to treat the wastewaters. This point is further substantiated in a letter dated January 23, 1987, from Gary Dietrich, Senior Vice-President of ICF to myself where it states:

> "The three surface impoundments (in series) at the Cedar Chemical (formerly Vicksburg Chemical) facility receive sewered process wastewaters, floor drainage, and stormwater from the facility and discharge these wastewaters through an activated carbon filter to the Mississippi River under an NPDES permit. As such, these impoundments serve a necessary water pollution control purpose by preventing the discharge of these wastewaters into the small local surface water stream and by facilitating the carbon treatment of these wastewaters before they are discharged into the Mississippi River."

FOR ALL THESE REASONS, THE LISTED WASTE (EPA HAZARDOUS WASTE NO. K041-WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF TOXAPHENE) WAS GENERATED IN THE SURFACE IMPOUNDMENTS AT VCC'S FACILITY IN VICKSBURG, MISSISSIPPI. SINCE THE IMPOUNDMENTS CONTAINED (AND MAY STILL CONTAIN) THE LISTED WASTE, THE IMPOUNDMENTS ARE SUBJECT TO REGULATION UNDER THE RCRA HAZARDOUS WASTE PROGRAM.

COMMENTS

In the previous section, I indicate the reasons that the waste streams that were generated from the toxaphene manufacturing process at VCC's facility in Vicksburg Missisippi are a listed hazardous wastes. In this section, I will respond to a number of comments/statements made by representatives of the Cedar Chemical Corporation.

- De minimis Loss Provision - In reviewing the documents submitted by Cedar Chemical and their representatives, they appear to believe that de minimis losses of commercial chemical products that occurred and are associated and included as the basis for listing the untreated process wastewater from toxaphene production (K098) are exempt from regulation under the mixture rule exemption. See §261.3(a)(2)(iv)(D). This is not supported by EPA's rules. Under this part of the mixture rule exemption, it indicates that de minimis losses[3] of commercial chemical products that are discharged to wastewaters (that are subject to regulation under Section 402 or 307(b) of the Clean Water Act) are not automatically considered hazardous wastes, unless the wastewater is a listed hazardous waste or the wastewater exhibits one or more of the hazardous waste characteristics. The purpose of this provision was to avoid the unnecessary regulation of wastewater treatment units that only receive de minimis losses of commercial chemical products. Since the Agency has specifically listed the wastewaters from toxaphene production, and since we have not specifically excluded this listing or any part of it from the mixture rule exemption, the commercial chemical product exemption in §261.33(a)(2)(iv)(D) does not apply in this case.

- Intent of Listings - In the November 10, 1986, letter from Fred Ahlers to Sam Mabry, it indicates (on pg. 5; answer to Question 11) that "no toxaphene contaminated process wastewater or sludges of the type contemplated by EPA's Background Document were generated at the Vicksburg Plant." This is simply not the case. The LBD clearly describes the wastestreams that were generated at Vicksburg and recognizes that there is some difference between these wastestreams and those generated at the Hercules facility. In particular:

3/ De minimis losses is defined to include minor spills, leaks from pipes and valves, minor leaks from process equipment, leaks from well-maintained pump packings and seals, etc.

"At the Hercules Plant, wastewater is generated from the toxaphene production process (leaks, spills, and washdowns), as well as from the scrubbing of vent gases in the HCl absorption and recovery step... The sludge results from the addition of diatomaceous earth and lime to the wastewater. The solids are allowed to settle in holding ponds and...

"At Vertac's Vicksburg plant, the toxaphene containing process wastewater stream seems to be the bleed stream from the caustic soda scrubber for off-gas cleanup in the HCl absorption and recovery step... These effluent streams, discharged at a flow rate of about 0.63 liters/sec (10gpm), along with residual toxaphene from past spills, are piped to an equilization pond, and then treated in activated carbon absorption units."

Therefore, the LBD describes Vertac's wastestreams and does not (as the letter states) contemplate something different.

- <u>Intent of Footnote on pg. 6 of the LBD</u> - In the <u>November 20, 1986, letter from Allen T</u>. Malone to Sam Mabry, it says (on pg. 3) that the footnote on page 6 of the LBD "makes it clear that the classification (K041) had nothing to do with any such wastes generated at the Vicksburg Plant." Again, this is simply not the case. The footnote on page 6 simply says that there is no data (at the time the LBD was prepared) on the quantity of wastewater treatment sludges generated at the Vertac Plant nor was there any data available on the concentration of toxaphene in these sludges. It does not (as the letter implies) say that the wastes generated at Vertac do not meet the listing description. [It should be noted that since the LBD was prepared, analytical data has been collected by the Mississippi DNR on the concentration of toxaphene in the sludges contained in the surface impoundments at VCC's facility in Vicksburg, Mississippi (see Attachment B). This data demonstrates that the concentration of toxaphene in these sludges is significant (<u>i.e.</u>, up to 2,300ppm.]

Please feel free to give me a call at (FTS) 8-475-8551 if you have any questions.

cc: S. Mabry (Mississippi DNR)

Attachments

Attachment A - List of Documents Reviewed

1. Memorandum (undated) from James E. Scarbrough, Chief, Residuals Management Branch, EPA Region IV to Matt Straus, Chief, Waste Characterization Branch, WCB, OSW [Attachments to memo are listed separately].

2. Letter dated October 22, 1986, from Sam Mabry, Director, Hazardous Waste Division, Mississippi DNR to James Scarbrough, Chief, Residuals Management Branch, EPA Region IV

3. Listing background Document to Toxaphene Listings (Version includes proprietary information relevant to VCC's facility in Vicksburg, Mississippi)

4. Letter (with attachments) dated November 10, 1986, from Fred Ahlers, Plant Manager, Cedar Chemical Corporation to Sam Mabry, Director, Hazardous Waste Division, Mississippi DNR; Attachments to the letter include: (1) VCC NPDES Permit Applicaton dated June 26, 1981 (Attachment A); (2) VCC NPDES Permit Application dated January 3, 1986 (Attachment B); (3) Letter from MDNR Bureau of Pollution Control dated November 8, 1985 (Attachment C); (4) MDNR Generator Annual Hazardous Waste Report - 1981 (Attachment D); (5) MDNR Generator Annual Hazardous Waste Report - 1982 (Attachment E); (6) MDNR Generator Annual Hazardous Waste Report - 1983 (Attachment F-1); (7) MDNR Facility Annual Hazardous Waster Report - 1983 (Attachment F-2); (8) EPA Facility Biennial Hazardous Waste Report for 1985 (Attachment G); (9) Piping Diagram-North Plant (Attachment H); (10) Letter dated February 18, 1983 from R. F. Maraman, Chief Chemist, VCC to MDNR Bureau of Pollution Control (Attachment I); (11) Schematic of VCC's Toxaphene Production Process (Attachment J); and (12) Schematic of what is believed to be Hercules' Toxaphene Production Process (Attachment K).

5. Three Mississippi Commission Orders against VCC: (1) Compliant No. 599-82, November 10, 1982; (2) Complaint No. 717-84, June 11, 1984; and (3) Complaint No. 948-85, November 20, 1985.

6. Letter dated November 20, 1986, from Allen T. Malone of the Law Offices of Apperson, Crump, Duzane, and Maxwell to Sam Mabry, Director, Hazardous Waste Division, Mississippi DNR.

7. Wastewater Treatment Technology Documentation for Toxaphene Manufacture, Report prepared by the Midwest Research Institute for the U.S. Environmental Protection Agency, EPA 400/9-76-013 (PB-253 676), February 6, 1976.

8. Mixture Rule Amendment, 46 FR 56582, November 17, 1981.

9. Letter (undated) from James H. Scarbrough, Chief, Residuals Management Branch, EPA Region IV to Charles H. Chisolm, Director, Bureau of Pollution Control, Mississippi DNR.

10. Analytical Data of VCC's Sludge Taken from the On-site Surface Impoundments.

11. Three RCRA Site Inspection Reports at VCC's Vicksburg facility: (1) Jim Cook, Inspector, November 22,1985; (2) Andrew Kromis, Inspector, July 27, 1981; and (3) Jane Stone, Inspector, August 7, 1986.

12. Data from a grab sample in 1983 from an area near the impoundments.

13. An excerpt from VCC's Part B Permit Application.

14. Letter dated February 21, 1985, from Dick Karkkainen, Director of Environment and Safety, Vertac Chemical Corporation to Chuck Estes, Hazardous Waste Section, Mississippi DNR.

15. Letter dated January 23, 1987, from Gary Dietrich, Senior Vice President, ICF Technology to Matthew Strauss, Chief, WIB, OSW.

ATTACHMENT B

#2 2

Sampling Plan
Vicksburg Chemical Impoundment
MSD990714081
Vicksburg, Mississippi

Parameter: Toxaphene
Arsenic
Dinoseb
Acid Extractables
Base Neutral Compounds

Total Extractions will be run for all parameters. If any samples contain over 0.5 mg/l of toxaphene, then both the Extraction Procedures Toxicity and the Toxicity Characteristic Leaching Procedure will be run on the sample with the highest level of toxaphene.

Safety: Due to the nature of the material in the impoundment and the probability that the sampling will require the use of a boat, a separate site safety plan will be prepared by the contractor.

Equipment: Samples may be collected from a boat using shelby tubes, split spoons, push tubes, or equivalent methods.

Coring equipment used to collect samples should be such that disturbance of the soil column is minimized.

Sample containers and ice chests will be provided by the MBPC.

Sample Types: Grab sediment samples.

Split Samples: Splits of all samples will be offered to Vicksburg Chemical Company.

Sampling Points: A series of 26 discrete sample point locations have been selected on a 50 ft. grid for the impoundment with the exception of sample points 1 and 1A which will be taken near the mouth of the inlet pipe [see illustration #1].

Sample Compositing: The samples from the 26 discrete sampling points will be composited per the following scheme:

*6 ft. - 4 ft. core depth

	Sample Number
Composite discretes 1 & 1A	VC-A
Composite discretes 2 & 5	VC-B
Composite discretes 3 & 4	VC-C
Composite discretes 6, 7, & 8	VC-D

*4 ft. - 2 ft. core depth

Composite discretes 1 & 1A	VC-E
Composite discretes 2 & 5	VC-F
Composite discretes 3 & 4	VC-G
Composite discretes 6, 7, & 8	VC-H

*2 ft. - 0 ft. core depth

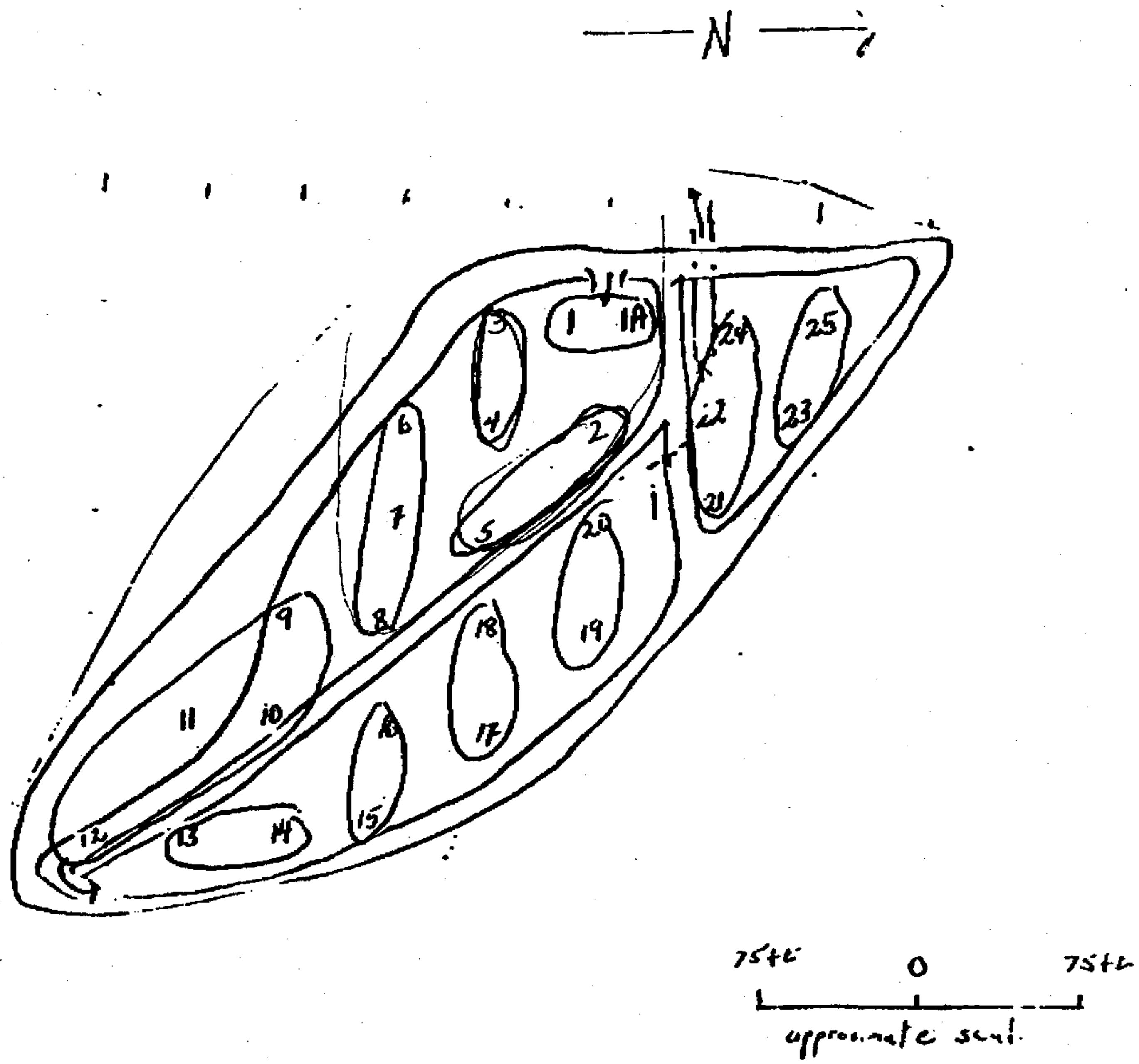
	Sample Number
Composite discretes 1 & 1A	VC-I
Composite discretes 2 & 5	VC-J
Composite discretes 3 & 4	VC-K
Composite discretes 6, 7, & 8	VC-L
Composite discretes 9, 10, 11 & 12	VC-M
Composite discretes 13 & 14	VC-N
Composite discretes 15 & 16	VC-O
Composite discretes 17 & 18	VC-P
Composite discretes 19 & 20	VC-Q
Composite discretes 21, 22, & 24	VC-R
Composite discretes 23 & 25	VC-S

Sample Collection: Samples 1, 1A, and 2 through 8 shall be collected in 2 ft. portions to a total depth of 6 ft. Sample points 9-25 should be collected to a maximum depth of 2 ft. Illustration #2 provides information as to the expected sediment depths. All samples will be collected according to EPA QA/QC standards. Samples shall be composited in glass or stainless steel bowls that have been cleaned with acetone and hexane and covered with aluminum foil prior to use. The samples will be thoroughly mixed using stainless steel spoons prior to placing in the sample container.

All sampling activities will be conducted under the supervision of a representative of MBPC.

JM:els

Illustration #1



50 ft grid

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1896-1985

CHARLES METCALF CRUMP
JERRE G. DUZANE
JOHN B. MAXWELL, JR.
ALLEN T. MALONE
PHILIP G. KAMINSKY
ROBERT L. DINKELSPIEL
MICHAEL E. HEWGLEY
JAMES F. RUSSELL
JOHN L. RYDER
TONI CAMPBELL PARKER
J. KEITH McCORMIC
MELODY W. OLIVER
WILLIAM B. MASON, JR.

SAMUEL RUBENSTEIN
JOHN HART TODD
OF COUNSEL

LAW OFFICES
APPERSON, CRUMP, DUZANE & MAXWELL
26TH FLOOR
100 NORTH MAIN BUILDING
MEMPHIS, TENNESSEE 38103
901/525-1711

EAST OFFICE
SUITE 100
KIRBY CENTRE
1755 KIRBY PARKWAY
MEMPHIS, TENNESSEE 38119
901/756-6300

April 29, 1987

RECEIVED
MAY - 1 1987
DEPT. OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL
DIVISION OF SOLID WASTE
REVIEWED BY
DATE
COMMENTS Sent to EPA
11-16-87

Mr. Sam Mabry, Director
Division of Hazardous Waste
Mississippi Department of
Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

Re: Cedar Chemical Corporation
Vicksburg Chemical Division
Order No. 1153-86

Dear Mr. Mabry:

On behalf of Cedar Chemical Corporation, the respondent in the referenced Order of Dismissal issued December 17, 1987 by the Mississippi Commission on Natural Resources (the "Order"), this is to respond to your letter to Mr. Fred Ahlers, Vicksburg Plant Manager, dated April 15, 1987.

It having been finally determined in the Order that the handling of wastes in connection with past Dinoseb production at the Vicksburg Plant does not afford a basis for regulating the Plant's "Surface Impoundment" under RCRA, the Department now asserts that past toxaphene production at the Plant (which ceased in October, 1982) brings the Surface Impoundment under the regulatory framework of RCRA, as adopted in Mississippi by the Mississippi Hazardous Waste Management regulations ("MHWMR"). To come to such a conclusion, you had to determine that the prior owner of the Vicksburg Plant either discharged to the Surface Impoundment "untreated process wastewater" from toxaphene production (listed harzardous waste No. K098) or that sediment in the Surface Impoundment constitutes "wastewater treatment sludge" from toxaphene production (listed hazardous waste No. K041).

You have acknowledged that interpretation of the applicable MHWMR in this case is based entirely on an advisory opinion issued by Mr. Matthew Strauss with EPA's Office of Solid Waste. Pursuant to the Department's regulations, we request that you furnish us with a copy of Mr. Strauss' opinion as soon as possible in order for us to prepare for the May 27th hearing.

By letter dated January 23, 1987 to Mr. Strauss, Mr. Gary Dietrich, who served as EPA's Deputy Director in charge of hazardous waste listings at the time the "toxaphene rule" was promulgated, and who previously testified before the Commission in this case, expressed the opinion that the above KO98 and K041 listings have no applicability to the wastes previously generated at the Vicksburg Plant. A careful review of EPA's background document will show that the decision to list K098 and K041 as hazardous wastes was based on data relating to a toxaphene plant previously operated by Hercules Inc. at Brunswick, Georgia. The Hercules Plant produced process wastewater resulting in seven tons per day of wastewater treatment sludge containing toxaphene at levels of approximately 10,000 parts per million. The manufacturing process used at the Vicksburg Plant generated no such process wastewater nor did it result in any sludge of the kind described in the background document with respect to the Hercules Plant. These undisputed facts have been documented in prior submittals on behalf of Cedar, all of which should be part of the record for review by the Commission.

You have suggested that a "delisting petition" would have been the proper procedure for removing past waste streams at the Vicksburg Plant from the hazardous waste designations proposed in your letter. Cedar's only response is that the personnel at the Plant would never have dreamed that scrubberwater produced from recovery of HCl (containing non-detectible concentrations of toxaphene) or de minimis and incidental leaks and spills that might have occurred in the course of toxaphene production at the Plant could have possibly been considered "untreated process wastewater from production of toxaphene" or that the sediments at the bottom of the Surface Impoundment could ever be considered "wastewater treatment sludge" as intended by KO98 and KO41.

Putting aside issues relating to the scope reasonably intended by the K098 and K041 hazardous waste listings, we submit that subjecting the Surface Impoundment at the Vicksburg Plant to RCRA regulation will actually do more harm than good in terms of protecting the environment. It is important to direct the Commission's attention to the following facts:

> The Surface Impoundment which is used to handle, treat and discharge non-hazardous wastes generated daily at the Vicksburg Plant is essential to the Plant's ability to continue operating.

If the Surface Impoundment is designated a hazardous waste unit under RCRA, Cedar would be required to discontinue use of the Impoundment, and replace it with new facilities in order to keep the Vicksburg Plant operational. It is doubtful that Cedar or any other company could justify the costs of constructing above-ground tanks to replace the Surface Impoundment, coupled with the costs of closing the Impoundment.

The Surface Impoundment presently collects storm water run-off which typically contains sediments contaminated with pesticides. In its present operations, Cedar treats the water leaving the Impoundment, and discharges it to the Mississippi River daily, pursuant to its NPDES Permit. As a result, operation of the Impoundment and pretreatment system prevents the uncontrolled migration of toxaphene and other contaminants to surface waters and streams at the Plant site. Closure of the Impoundment would eliminate this valuable function.

These unfortunate results which would flow from subjecting the Surface Impoundment to RCRA regulations can be avoided by rejecting the unreasonable interpretation of the MHWMR advanced by EPA. As you have acknowledged, the Department is fully capable of assuring that the Surface Impoundment poses no threat of contamination to groundwater, whether or not it is determined to be a hazardous waste unit under RCRA. In fact, assuming that EPA's interpretation of the MHWMR is rejected, Cedar is nevertheless committed to continued groundwater monitoring at the Vicksburg Plant.

We believe the sensible approach is for the Department to continue to regulate the Surface Impoundment so as not to eliminate the useful environmental and operating functions which it now serves. That was precisely the approach suggested by Mr. Dietrich in his letter of January 23, 1987 - an approach which would not only help protect the environment at the Vicksburg Plant but would also help protect the jobs held by numerous residents of Warren County who depend on the Plant for their livelihood.

Sincerely yours,

Allen T. Malone

ATM:jw
cc: Mr. William L. Smith
Brunini, Grantham, Grower & Hewes

April 15, 1987

FILE COPY

Mr. Fred Ahlers, Plant Manager
Vicksburg Chemical Corporation
P. O. Box 3
Vicksburg, Mississippi 39180

Dear Mr. Ahlers:

In accordance with Mississippi Commission on Natural Resources Order No. 1153-86, this letter states the basis for the Bureau of Pollution Control to regulate the Vicksburg Chemical Corporation surface impoundment as a hazardous waste facility.

It is the Bureau's position that

1. After the November 19, 1980, effective date of the Mississippi Hazardous Waste Management Regulations (MHWMR), the surface impoundment continued for some time to receive a listed hazardous waste, K098, "untreated process wastewater from the production of toxaphene" (MHWMR 261.32); and

2. The impoundment now contains a second listed hazardous waste, K041, "wastewater treatment sludge from the production of toxaphene" (MHWMR 261.32).

Because both listed wastes have been placed (or generated) in the impoundment after the effective date of the MHWMR, the impoundment is a regulated hazardous waste impoundment.

The Bureau bases its determination that K098 was discharged into the impoundment after November 19, 1980, on the following language in your letter of November 10, 1986, to me (see enclosure):

> In fact the only "waste streams" associated with toxaphene production at the Vicksburg plant would have consisted of any de minimis losses occasioned by minor leaks and spills, and scrubber water generated from operation of the plant's air emission control procedures in connection with its HCl recovery system (muriatic acid or HCl being a by-product of the toxaphene production process).

The EPA Background Listing Document (see enclosure) describes the listed K098 toxaphene wastewater as "leaks, spills and wash (washdowns) as well as the scrubbing of vent gases in the HCl absorption and recovery step."

The wastewater described in Vicksburg Chemical's November 10, 1986, letter seems essentially identical to the description of K098 in the Background Listing Document. The same letter indicates further that the muriatic acid waste streams from the toxaphene production process continued to be generated and discharged into the pond until October, 1982.

Sampling and analyses have shown quantifiable levels of toxaphene to be present in the sludge in the impoundment (see enclosure). The Bureau's position is that the impoundment sludge, therefore, meets the K041 listing description: "wastewater treatment sludge from the production of toxaphene."

Vicksburg Chemical Company has, both in your November 10, 1986, letter and in Mr. Allen Malone's letter of November 20, 1986 (see enclosure), argued that the K098 and K041 listings relate only to the toxaphene waste streams generated at the time of listing (November 19, 1980, effective date) by the Hercules, Inc., Brunswick, Georgia, plant, and not to Vicksburg Chemical's wastes. However, the Bureau finds nothing either in the specific language of the listing descriptions or in the Background Listing Document itself to substantiate this position taken by the company. The listings are generic to any toxaphene wastewaters or sludges. The MHWMR specify procedures for petitioning EPA to exclude a listed waste produced at a particular facility if the petitioning owner/operator believes that the waste produced at the facility "does not meet any of the criteria under which the waste was listed as a hazardous waste" (MHWMR 260.22). It is the Bureau's position that this "delisting" procedure is the only appropriate means prescribed in the regulations for addressing the company's contention that its wastes are essentially different from the waste streams on which the listings were based.

In summary, the Bureau asserts that the Vicksburg Chemical Company surface impoundment is a regulated hazardous waste unit, having received and stored listed hazardous wastes after the effective date of the applicable regulations. As provided by Commission Order No. 1153-86, the company has fourteen days from receipt of this letter to provide a written response to the Bureau. Also, in accordance with the order and as discussed with one of the company's attorneys, Mr. Bill Smith, a hearing on the matter will be scheduled for the May 27, 1987, regular Commission meeting. We will inform you of the time of the hearing as soon as the schedule is final.

Please call me if you have any questions regarding this letter or the enclosures.

Sincerely,

Sam Mabry, Director
Hazardous Waste Division

SM:els
Enclosure
cc: Mr. Bill Smith, Brunini, Grantham, Grower, & Hewes
Mr. Allen Malone, Apperson, Crump, Duzane, & Maxwell
Mr. Matt Strauss, EPA, Washington
Mr. James H. Scarbrough, EPA, Atlanta

ICF TECHNOLOGY

January 23, 1987

Mr. Matthew Strauss
Chief, Waste Identification Branch
Office of Solid Waste
Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

Subject: RCRA Status of Surface Impoundments at Cedar Chemical

Dear Matt,

Thank you for meeting with me on Wednesday afternoon of last week. As I promised, this letter is to summarize the points that I made on the subject situation.

The three surface impoundments (in series) at the Cedar Chemical (formerly Vicksburg Chemical) facility receive sewered process wastewaters, floor drainage and stormwater from the facility and discharge these wastewaters through an activated carbon filter to the Mississippi River under an NPDES permit. As such, these impoundments serve a necessary water pollution control purpose by preventing the discharge of these wastewaters into the small local surface water stream and by facilitating the carbon treatment of these wastewaters before they are discharged into the Mississippi River.

The stormwater influent into these impoundments carries some amount of sediment from the facility site which, over the many years of pesticide production at the facility, have become unavoidably contaminated from de minimus leaks and spills of pesticide product. The floor drainage influent into these impoundments also carry small amounts of pesticide residues from building and containment structures that derive from de minimus leaks and spills of pesticide product. These sediments and residues settle in the impoundments and over the years have formed a contaminated sediment in the impoundments. Because toxaphene was produced at the facility for over a decade, the sediments in the ponds contain concentrations of toxaphene that range from non-detectable to 2330 ppm. Happily, because of its affinity to absorb onto soil sediments, this toxaphene is and has been well contained in these sediments and has not migrated into the environment. EP and TCLP analyses yield non-detectable levels (<0.04 ppm) of toxaphene in extracts and toxaphene has not been detected in groundwater monitoring well surrounding and downgradient from the impoundments. Carbon filtration of the impoundment discharges to the Mississippi River have controlled migration of toxaphene to surface waters.

Notwithstanding the above-described environmental protection benefit served by the impoundments, the State and Region IV have raised the question of whether the impoundments are hazardous waste units by virtue of containing and having received toxaphene. My reading of the hazardous waste regulations indicate that the impoundments would be hazardous waste units by virtue of toxaphene if (1) the sediments in the impoundments exhibit the characteristic of EP toxicity for toxaphene, (2) greater than de minimus losses of toxaphene product were discharged to the impoundment, or (3) EPA Hazardous Waste K098 or K041 were discharged to the ponds. As described below, my analysis indicates that none of these criteria are or were met and, therefore, the impoundments are not hazardous waste units by virtue of toxaphene content or wastewater influents.

Analyses of the sediments in the impoundments, based on sampling and analyses performed by the State, show that they do not exhibit the characteristic of EP toxicity for toxaphene. EP extract toxaphene concentrations of 0.1, 0.04 and 0.04 ppm were obtained against the characteristic concentration limit of 0.5 ppm. A previous State sample showed an EP extract concentration of 0.02 ppm toxaphene. In additional, analyses of samples taken by Cedar Chemical show that the sediments do not exhibit any of the other characteristics of hazardous waste, including the EP toxicity characteristic for the heavy metals. Consequently, the impoundments cannot be regarded as hazardous waste units by virtue of containing sediments that exhibit characteristics of hazardous waste.

Cedar Chemical reports that there were no discharges of discarded commercial product to the impoundments, including discharges resulting from significant spills or leaks of toxaphene product, during the period of toxaphene manufacture. There were, however, *de minimus* losses of toxaphene product from the manufacturing process as a result of occasional pipe flange, pump packing, hose coupling and other minor leaks. Over time, these losses were washed into the impoundments through the floor drainage and stormwaters collected by the facility's sewer system. Indeed, it was these losses that produced the toxaphene concentrations currently found in the impoundment sediments. These current concentrations of toxaphene in the sediments are in the same order of magnitude as concentrations of DNBP in the sediments.

Cedar Chemical has made a demonstration to the State that the DNBP concentrations in the impoundments could only have resulted from de minimus losses of DNBP product from the manufacturing process. Cedar Chemical is prepared to make the same demonstration with respect to toxaphene. In summary, there were no discharges of discarded toxaphene product to the impoundments other than discharges resulting from de minimus losses of toxaphene product from the manufacturing process. Hence the impoundments cannot be regarded as hazardous waste units by virtue of receiving discarded toxaphene product.

As indicated by the attached flow diagram, the toxaphene manufacturing process employed by Cedar Chemical did not generate a process wastewater. The muriatic acid recovery system associated with the toxaphene manufacturing process did generate a scrubber wastewater, but I contend that this was not an "untreated process wastewater from the production of toxaphene" as defined by the K098 listing. Rather, it was a wastewater generated by an entirely separate unit process; i.e., the muriatic acid recovery process. Furthermore, it was a wastewater that contained no detectable amount of toxaphene (see page 41 of Reference 4 of the listing background document) because the low volatility of toxaphene prevented detectable amounts from being entrained in the reactor vent gases that were passed over to the muriatic acid recovery system. In summary, K098 wastes were not discharged into the impoundments.

Because no process wastewater was generated by the toxaphene manufacturing process, there was no wastewater to treat. Therefore, no K041 waste (i.e., "wastewater treatment sludge from the production of toxaphene") was generated or discharged into the impoundments.

The State and Region IV seem to believe that the Listing Background Document for Toxaphene Production support their contention that the scrubber wastewater that was generated by the muriatic acid recovery system was a K098 waste. A careful review of the Background Document clearly reveals that the conclusion to list K098 and K041 wastes as hazardous wastes was based exclusively on the toxaphene contained in the process wastewaters and wastewater treatment sludges generated by the Hercules plant in George. In items I.1 and I.2 on page 1 of the document, the following two considerations were the only considerations respecting toxaphene generation used to list toxaphene production wastes and these considerations are based exclusively on data from the Hercules plant:

> "Toxaphene is present in each of these waste streams; in the case of the wastewater treatment sludge, if it is found it is found in very high concentrations."
>
> "Approximately 7 tons of wastewater treatment sludge containing about 140 lbs. of toxaphene are generated per

production day. About 19,000 tons of sludge are already disposed of in a landfill in Georgia."

With respect to the first of these considerations, there is no data presented in the Background Document to support the fact that the scrubber wastewater stream or any other wastewater stream generated by the Cedar Chemical plant contains any toxaphene. (There is a statement on page 5 of the Document which states that "Analysis of the bleed stream (Cedar Chemical's scrubber wastewater stream) indicated the presence of chloroform at 8 ng/l, carbon tetrachloride at 625 ng/l, chlorobenzene at 146 ng/l, and toxaphene at 33 ng/l", but this information is attributed to the Georgia Department of Natural Resources which leads one to believe that it pertains to a bleed stream from the Hercules plant rather than the Cedar Chemical plant). Instead, there is information on page 41 of the effluent guidelines document which was used in the development of the Background Document (see reference 4 of the Background Document) which states: "The only liquid waste produced in the toxaphene process at the Vicksburg, Mississippi, plant is the neutralized HCl waste discharged at a rate of about 10 gpm from the caustic scrubber (Meiners and Mumma, 1975c). Chemical analyses performed by independent testing laboratories on samples of this effluent have not detected any toxaphene."

With respect to the second consideration, there is no evidence in the Background Document that the Cedar Chemical plant (1) generated a wastewater treatment sludge, (2) generated 7 tons of wastewater treatment sludge, or discharged 140 pounds of toxaphene per production day. In fact, if one hypothesizes that the 10 gpm of scrubber wastewater contained 1 mg/l of toxaphene on the basis that this was the detection limit of the analytical method used by the independent testing laboratory in the analysis reported on page 41 of the effluent guideline document used to support the Background Document, the daily discharge of toxaphene through the scrubber effluent would have been 0.12 pounds/day, a far cry from the 140 pounds/day used in the second consideration.

Furthermore, virtually all of the discussion in the Background Document describing the generation and management of wastewaters and wastewater treatment sludges that contain toxaphene and describing the consequences of mismanagement of these wastes is based on information about the Hercules plant (see pages 3 through 8 of the Background Document). Only one paragraph on pages 5 and 6 describe the generation and management of wastewaters at the Cedar Chemical plant and there is no discussion of the consequences of mismanagement of these wastewaters. In short, the Cedar Chemical plant is implicated for the discharge and potential mismanagement of large quantities of toxaphene-containing wastewaters and wastewater treatment sludges based on information from the Hercules plant.

As you and I both know, the toxaphene and other Background

Documents were hurriedly written in the early months of 1980 in order to support the listing of hazardous wastes in the regulations that we had to promulgate and did promulgate in May of that year. We did not have the luxury for a great deal of quality control and, in hindsight, one of the consequences of that paucity of quality control was, in my opinion, the poor support for the listing of toxaphene process wastes in the Background Document discussed in this letter. Indeed, in my opinion, if we would have had better quality control, we probably would have written a toxaphene listing description that clearly excluded the scrubber effluent from the Cedar Chemical plant because the data clearly did not support the listing of that waste stream.

I hope this information and these views are helpful to you in advising the State and Region IV of the regulatory status of the Cedar Chemical impoundments. If you would like to further discuss this matter with me, please give me a call at 862-7271.

Sincerely yours,

Jerry

Gary N. Dietrich
Senior Vice President

Attachment

CEDAR CHEMICAL CORPORATION

24th Floor • 5100 Poplar Avenue • Memphis, TN 38137 • 901-685-5348

NOV 12 1986

BUREAU OF POLLUTION CONTROL

November 10, 1986

Mr. Sam Mabry
Director, Division
of Hazardous Waste
Mississippi Department of
Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

CONFIDENTIAL

Re: Vicksburg Plant/Regulatory Status of Surface Impoundment

Dear Mr. Mabry:

This letter is in response to the questions which you submitted to me by letter of October 22, 1986. This confirms that much of the information supplied below is confidential or in the nature of trade secrets. Accordingly, your office should take all necessary steps to protect the information from being disclosed to third parties or otherwise published without the express written consent of Cedar Chemical Corporation.

Question 1: Provide a list of all products and identifiable intermediates produced by the Vicksburg facility (both north and south plants) since November 19, 1980. Include with this list the time period(s) in which each product was produced and the quantities produced.

Answer: Inorganic Products:

a. Potassium Nitrate Facility - From November, 1980 through September, 1986, three products have been produced in this Facility: Potassium Nitrate (KNO_3) - 513,918 tons; Chlorine (CL_2) - 189,149 tons; and Nitrogen Tetroxide (N_2O_4) - 3,940 tons.

b. Nitric Acid Facility - From November, 1980 through September, 1986, this Facility produced 376,291 tons of Nitric Acid (HNO_3), substantially all of which has been utilized as an intermediate in the production of the products identified herein in the Potassium Nitrate and Dinitrobutylphenol Facilities.

In April, 1986, Nitric Acid production started up in a new Nitric Acid Facility which replaced the old Nitric Acid Facility.

Organic Products:

c. Toxaphene Facility - From November, 1980 through October, 1982, 7,479 tons of toxaphene and 10,744 tons of a by-product, Muriatic Acid (HCl) were produced.

d. Dinitrobutylphenol (DNBP) Facility - From November, 1980 through September, 1986, 17,723 tons of DNBP and 17,675 tons of an intermediate, sulfonated ortho secondary butyl phenol (OSBP) were produced.

e. Monosodium methanearsonate (MSMA) Facility - from January, 1983 to July, 1984, in a newly constructed facility on the Plant site, 399 tons of MSMA and 455 tons of an intermediate, disodium methanearsonate (DSMA) were produced.

Custom Manufactured Products for Third Parties:

f. Diethylhexylphosphoric Acid (DEHPA) - 732 tons of DEHPA and 776 tons of an intermediate, Diethylhexylphosphochloridate were produced between August and October, 1984 and May and June, 1985.

g. 1 Hydroxy-ethylidene - 1,1-diphosphonic acid (UNIHIB) - 19 tons of UNIHIB and 25 tons of a co-product, Acetic Acid produced in September, 1985

Question 2: Identify all waste streams associated with the above-mentioned products. Detail the constituents in each waste stream, the route and ultimate fate of each waste stream, the time of existence of each waste stream, and the quantities involved in each waste stream. This should include all leaks, spills and regular process waste streams.

Answer: With respect to the waste streams associated with the production of Potassium Nitrate and its co-products, Chlorine and Nitrogen Tetroxide; Nitric Acid; Toxaphene and Dinitrobutylphenol, please refer to Vertac Chemical Corporation's

NPDES Permit Applications dated June 26, 1981 and January 3, 1986 (Attachments A and B). In addition to the DNBP wash water discharged pursuant to the NPDES Permit, additional quantities of such wash water were shipped off-site for deep well disposal. Reference is also made to testimony and exhibits presented in support of Cedar Chemical Corporation's Motion to Dismiss Complaint heard by the Commission on September 16, 1986.

With respect to the other products identified in response to Question 1, the following additional information is supplied:

MSMA - 2,720 tons of salt cake generated, containerized and disposed of in RCRA permitted facilities off-site. The facility was operated on a no-discharge basis.

DEHPA - 344 tons of ethylhexyl chloride (EHC) and 4,183 tons of wastewater and 18 tons of off-quality product, either DEHPA or intermediate, were containerized and transported to RCRA permitted facilities off-site. The DEHPA operation was on a no-discharge basis.

UNIHIB - HCl scrubber water (H_2O, NaCl, NaOH, and Sodium Acetate) discharged in accordance with NDPES Permit. The approval letter from Matthew Chun, Industrial Waste Water Control Section, MDNR Bureau of Pollution Control, dated November 8, 1985 is enclosed herewith as Attachment C.

<u>Question 3</u>: Designate which of the above waste streams VCC considers to be hazardous waste, and provide determination date and reports required by 40 CFR 262.11.

<u>Answer</u>: Cedar Chemical Corporation or its predecessors have handled the following waste streams as "hazardous waste" under RCRA, in each case causing said waste to be transported to a RCRA permitted storage or treatment facility off the plant site:

(1) Toxaphene and DNBP drums, trash and refuge contaminated with toxaphene and DNBP; (2) MSMA salt cake; (3) DEHPA waste streams identified above; and (4) unneutralized DNBP washwater. In some cases, products which

may not be classified as hazardous under RCRA were transported as such to insure safe handling. Copies of annual and biennial hazardous waste manifest reports required under RCRA previously submitted by Cedar Chemical Corporation's predecessors are attached hereto as Attachments D - G. Records of individual manifests are voluminous, and are available for inspection at the Vicksburg Plant.

Question 4: Provide any and all piping and flow diagrams (in addition to those submitted to the Bureau of Pollution Control on September 16, 1986), concerning the handling of waste streams since November 19, 1980. Indicate any changes made to the piping or flow patterns of waste streams since November, 1980. This should include all pertinent piping (above and below ground), open areas, ditches and/or lagoons at both the north and south facilities.

Answer: The Company has provided the Bureau of Pollution Control with all such diagrams which exist with respect to the South Plant. Additional diagrams with respect to the North Plant are enclosed herewith. (Attachment H)

Question 5: Provide a descriptive listing of all hazardous waste either received by VCC or shipped off-site. Indicate quantities and types manifested and all data and reports generated to determine the nature of the waste as required by 40 CFR 262.11.

Answer: The Plant has not received incoming shipments of hazardous waste. See Response to Question 3 for outgoing shipments.

Question 6: Provide a copy of any spill reports made under the NPDES program or the CERCLA program.

Answer: The only such report which Cedar Chemical Corporation is aware of is that filed in connection with a breach of the surface impoundment dike which occurred in February, 1983, a copy of which report is attached hereto. (Attachment I)

Question 7: Has Vicksburg Chemical produced chlordane, methyl parathion or disulfoton since November 1980?

Answer: No.

Question 8: If so, has any of the waste water from the production of the above products been placed in the surface impoundments?

Answer: Not applicable.

Question 9: If the process waste water was not placed into the impoundment, how was it handled?

Answer: Not applicable.

Question 10: If the process wastewater was placed into the impoundment, was the wastewater treated prior to its entering the impoundment?

Answer: Not applicable.

Question 11. EPA's background document for the listing of untreated toxaphene wastewater (K098) and sludges from toxaphene wastewater treatment (K041) specifies, "wastewater is generated from the toxaphene production processes (leaks, spills, and washdowns), as well as from the scrubbing of vent gases in the HCL absorption and recovery step." Cedar Chemical should provide a detailed schematic of its toxaphene production process at the Vicksburg plant, describing how wastewater such as that described above was handled. If the Vicksburg plant did not generate such a wastewater, an explanation of how such wastewater generation was avoided should be provided. (A copy of the background document is enclosed.)

Answer: A schematic of the toxaphene production process utilized by Cedar Chemical Corporation's predecessors, Vicksburg Chemical Company and Vertac Chemical Corporation, is attached. (Attachment J) As previously pointed out, no toxaphene contaminated process wastewater or sludges of the type contemplated by EPA's Background Document were generated at the Vicksburg Plant.

Cedar believes that the sludge from toxaphene wastewater treatment referred to in the Background Document and classified as K041 under RCRA resulted from the filtration of toxaphene solution through diatomaceous earth in accordance with the process utilized by Hercules, Inc. at its Brunswick, Georgia Plant, producing, according to the Background Document, approximately 7 tons per day of sludge containing approximately 1% toxaphene by weight. (See Schematic attached as Exhibit K) No such sludge was produced in the process utilized at the Vicksburg Plant, nor did the Vicksburg toxaphene process involve the discharge of any untreated process wastewater, as that term was intended in connection with the KO98 RCRA classification. In fact the only "waste streams" associated with toxaphene production at the Vicksburg Plant would have consisted of any de minimis losses occasioned by minor leaks and spills, and scrubber water generated from operation of the Plant's air emission control procedures in connection with its HCL recovery system (muriatic acid or HCL being a by-product of the toxaphene production process). The scrubber water consisted of a weak aqueous solution containing sodium chloride and sodium hydroxide.

It is believed that the Vicksburg Plant was able to avoid the generation of process wastewater (KO98) and sludge (K041) of the type generated by Hercules, Inc. at its Brunswick, Georgia Plant by utilizing high purity camphene, which it purchased as a raw material (toxaphene being produced by the chlorination of camphene). Hercules produced its own camphene from pine stumps, which, it is believed, produced a relatively low purity product requiring substantial filtration which the Vicksburg Plant process did not require.

Question 12: In an August 16, 1984, letter to the Mississippi Bureau of Pollution Control (MBPC), states, "In reviewing our past toxaphene discharge data I find that Vertac's last permit excursion occurred on February 16, 1982 (11.5 ppb)." Cedar Chemical should provide an explanation of the source of this toxaphene in the wastewater. (A copy of the letter is enclosed.)

Answer: Two possible explanations - (1) inaccurate analysis (toxaphene easily confused with other compounds at low ppb levels) and (2) possible heavy storm water runoff episode transporting surface soils adjacent to the facility, portions of which could have been contaminated with trace amounts of toxaphene as a result of previous de minimis losses, as has been shown in the case of dinoseb. It should be noted that the 11.5 ppb "excursion" referred to translates to less than one ounce of toxaphene based on an average daily flow of 500,000 gallons per day under the NPDES Permit.

Question 13: On February 17, 1983, the MBPC sampled both the sludge from the east side of the impoundment and the stream bank on the east side of the impoundment where the impoundment dike had failed. Analysis of these samples indicated the sediments contained 280 ppm and 360 ppm of toxaphene respectively. Cedar Chemical should provide an explanation of the source of the toxaphene found in impoundment sediment samples. (Copies of the analytical results are enclosed).

Answer: See response to Question 12. In addition, in view of the molasses-like consistency of toxaphene and its tendency to bind together and to adhere to soils or sediments, it would not be surprising if some contamination may have been dislodged in the heavy storm water incident which occurred in February, 1983, particularly in view of the long history of toxaphene production in facilities adjacent to the surface impoundment (since early 1970's). It should also be pointed out that the soil sample measuring 280 ppm was subjected to further analysis using the EP toxicity method, which demonstrated less than 20 ppb toxaphene, a level far below the regulatory level established under RCRA. It should also be pointed out that the Company caused the 18 samples obtained from the pond in September, 1986 to be analyzed for toxaphene contamination and none was detected within the lab's limit of detection of .1 ppm. The analytical results referred to above have been supplied to the Department by our counsel.

Sincerely yours,

CEDAR CHEMICAL CORPORATION

By: Fred Ahlers
Fred Ahlers, Plant Manager

FA:jw
Enclosures
cc: Colonel Charles Blalock
Mr. William L. Smith
Mr. Allen T. Malone

DIVISION OF SOLID WASTE
REVIEWED BY SA
DATE 11-14-86
COMMENTS Attachments maintained in separate file

ATTACHMENTS TO LETTER TO SAM MABRY, DIRECTOR
HAZARDOUS WASTE DIVISION, MDNR BUREAU OF POLLUTION CONTROL

November 10, 1986

Response No. 2:

A - Vertac Chemical Corporation NPDES Permit Application dated June 26, 1981.

B - Vertac Chemical Corporation NPDES Permit Application dated January 3, 1986.

C - Letter from MDNR Bureau of Pollution Control dated November 8, 1985.

Response No. 3:

D - MDNR Generator Annual Hazardous Waste Report - 1981.

E - MDNR Generator Annual Hazardous Waste Report - 1982.

F-1-MDNR Facility Annual Hazardous Waste Report - 1983.

F-2-MDNR Generator Annual Hazardous Waste Report - 1983.

G - EPA Facility Biennial Hazardous Waste Report - 1984 - 1985.

Response No. 4:

H - Piping Diagrams - North Plant.

Response No. 6:

I - Letter from R. F. Maraman, Chief Chemist, Vicksburg Facility to MDNR Bureau of Pollution Control dated February 18, 1983.

Response No. 11:

J - Schematic of Vicksburg's Toxaphene Production Process.

K - Schematic of what is believed to have been Hercules' Toxaphene Production Process.

Copy 4

LISTING BACKGROUND DOCUMENT

TOXAPHENE PRODUCTION *

Wastewater Treatment Sludge from the Production of Toxaphene (T)

Untreated Process Wastewater from the Production of Toxaphene (T)

I. Summary of Basis for Listing

The production of toxaphene, a chlorinated hydrocarbon pesticide, results in the generation of process wastewater containing heavily diluted concentrations of toxaphene, and wastewater treatment sludges that contain approximately one percent of toxaphene by weight.

The Administrator has determined that process wastewater and wastewater treatment sludge from toxaphene production may pose a substantial present or potential hazard to human health or the environment when improperly transported, treated, stored, disposed of or otherwise managed, and therefore should be subject to appropriate management requirements under Subtitle C of RCRA. This conclusion is based on the following considerations:

1) Toxaphene is present in each of these waste streams; in the case of the wastewater treatment sludge, it is found in very high concentrations. Toxaphene has been reported to cause cancer in laboratory animals and is extremely toxic. Toxaphene has also been recognized by the Agency as exhibiting substantial evidence of being carcinogenic. It is also a potent teratogen and has been shown to be mutagenic.

2) Approximately 7 tons of wastewater treatment sludge containing about 140 lbs. of toxaphene are generated per production day. About 19,000 tons of sludge are already disposed of in a landfill in Georgia. (5)

* Note: This document contains Vertac information only.

3) Disposal or treatment of these wastes in improperly designed or operated landfills or unlined lagoons could result in substantial hazard if toxaphene migrates via groundwater or surface water exposure pathways.

4) Toxaphene is highly persistent in the environment and bioaccumulates greatly in environmental receptors.

II. Sources of the Waste and Typical Disposal Practices

A. Profile of the Industry

Toxaphene is produced in this country by two manufacturers: Hercules, Inc. at its Brunswick, Georgia plant, and Vertac Chemical Company at its Vicksburg, Mississippi plant.(1) Data collected by EPA/ Effluent Guidelines Division indicate that in 1977,

1,600 metric tons (3.5 million pounds) of toxaphene were produced at the Vicksburg plant*.(2,3)

Toxaphene is a complex mixture of polychlorinated camphenes containing 67 to 69 percent chlorine and has the approximate composition of $C_{10}H_{10}Cl_8$. It has been used exclusively as a non-systemic and persistent contact and ingestion insecticide. Toxaphene is marketed as a 90 percent toxaphene-10 percent solvent solution using mixed or modified xylene as the solvent. This solution is then formulated by various companies into emulsifiable concentrates, either alone or with other insecticides. Little or no toxaphene is currently being used in dust, wettable powder, or granule formulations.

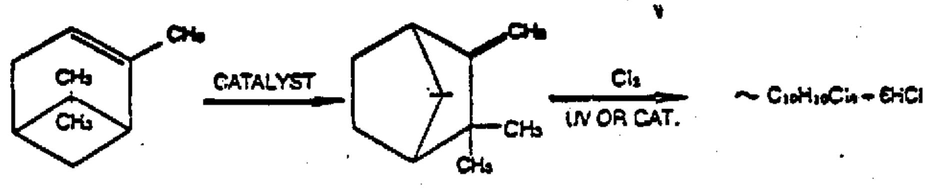
RCRA CONFIDENTIAL BUSINESS INFORMATION

*All underlined data are obtained from proprietary reports and data.

Does Not Contain National Security Information (E.O. 12065)

B. Manufacturing Process

Toxaphene is produced in essentially the same manner by both domestic manufacturers. The reaction chemistry is as follows:[19]



α-PINENE CAMPHENE TOXAPHENE

C. Waste Generation and Management*

At the Hercules plant, wastewater is generated from the toxaphene production process (leaks, spills and washdowns), as well as from the scrubbing of vent gases in the HCl absorption and recovery step (see Figure 1).

(2) The volume of wastewater treated averages 4.4-4.6 liters/sec[3] (0.10-0.15 MGD).

(2) The treated wastewater is directly discharged to a navigable waterway.

In Hercules' toxaphene wastewater treatment system, an average of 7 tons/day of wastewater treatment sludge (settled solids) is generated.[4,5]* The sludge results from the addition of diatomaceous earths

*Variations in wastewater treatment systems or in wastewater sources at the two plants may result in different concentrations of toxaphene in the wastewater treatment sludges.

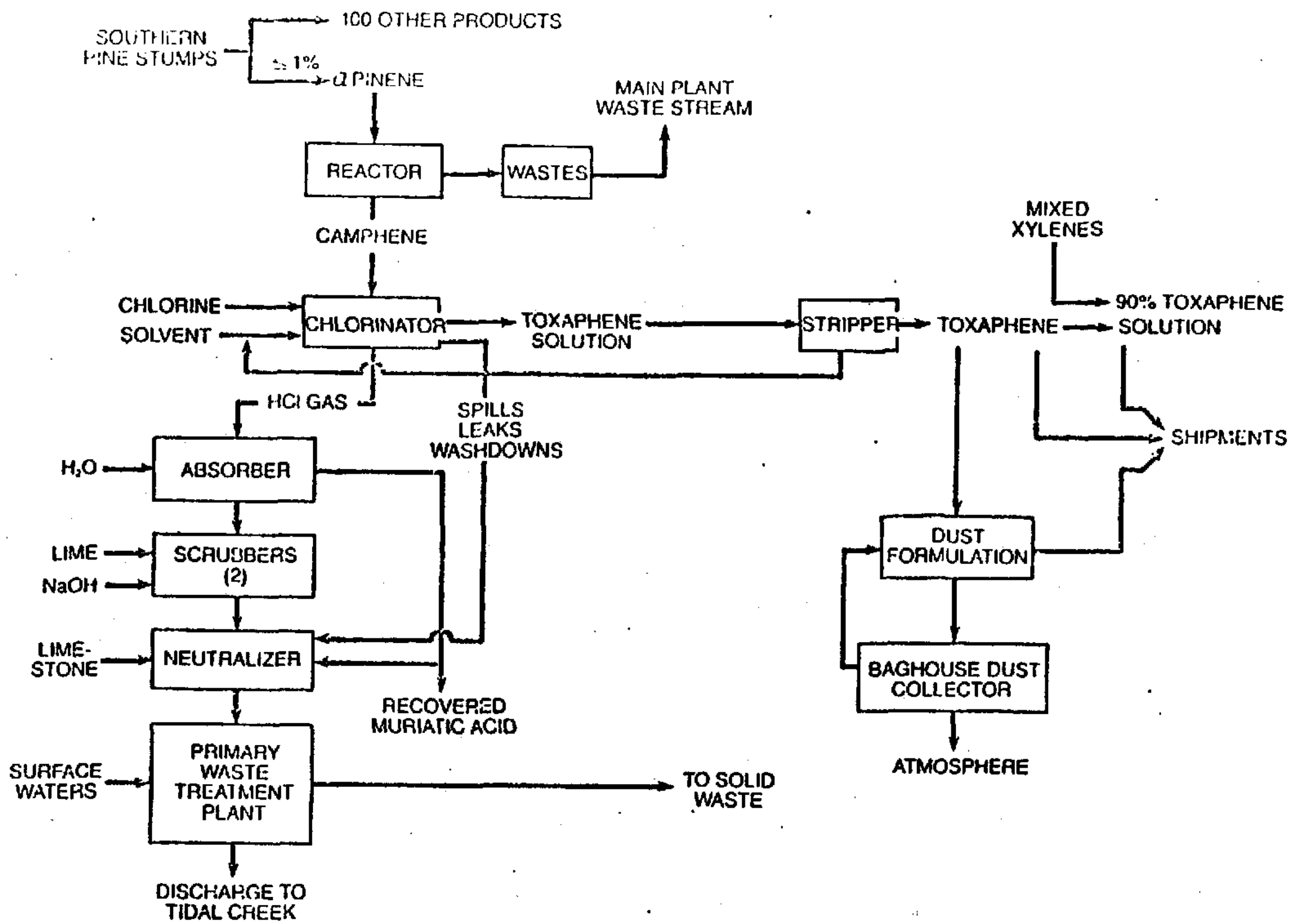


Figure 1. HERCULES' PRODUCTION AND WASTE SCHEMATIC FOR TOXAPHENE[4]

and lime to the wastewater as sorption agents for the removal of toxaphene from the wastewater.[5] The solids are allowed to settle in holding ponds and may remain there for months at a time.[13] After the basin is filled with solids it is taken off line and the sludge is allowed to dry to approximately 50% solids.[5] Analyses of the sludge performed by Hercules indicate that the sludge contains approximately one percent toxaphene by weight, or 10,000 mg toxaphene/kg of sludge.[5] Some 140 lb/day of toxaphene are generated and will be contained in this waste stream.[4,5]

The ultimate destination of the toxaphene wastewater treatment sludge generated at the Hercules plant is a state-approved landfill.[6] The landfill is known as the "009" landfill and is a privately owned site operating under Georgia permit. It is used exclusively for the disposal of the toxaphene wastewater treatment sludge generated at the Hercules Plant.[6] The "009" landfill used for disposal of the Hercules toxaphene wastewater treatment sludge has a bentonite clay liner, and has 6 monitoring wells which are monitored 4 times per year. To date, no toxaphene has been detected in the wells.[6]

At Vertac's Vicksburg plant, the toxaphene-containing process wastewater stream seems to be the bleed stream from the caustic soda scrubber for off-gas cleanup in the HCl absorption and recovery step[3]. Analysis of the bleed streams indicated the presence of chloroform at 8 ng/l, carbon tetrachloride at 625 ng/l, chlorobenzene at 146 ng/l, and toxaphene at 33 ng/l[5]. These effluent streams, discharged at a flow rate of about 0.63 liters/sec (10 gpm), along with residual toxaphene from past spills, are piped to an equalization pond, and then treated in activated carbon adsorption units[3,5]. Wastewater streams from two other pesticide production facilities on site, the dinoseb and atrazine manufacturing plants, are also sent to the same equalization pond and activated carbon units for treatment [3]. The activated carbon is sent off-site (to Calgon Corp.) for regeneration. There are no indications that any solids accumulated in the equalization pond have been removed to date.* This pond, or lagoon, is unlined.[14] The treated wastewater is discharged to the Mississippi River.

III. Discussion of Basis for Listing

A. Hazards Posed by the Waste

As noted above, in the Hercules toxaphene wastewater treatment system, an average of 7 tons/day of waste sludge are generated.[4,5] The toxaphene content in the waste sludge is approximately at one percent by weight or 10,000 mg/Kg sludge. High concentrations of toxaphene are undoubtedly present in process wastewater to account for such high concentrations in the sludge.

Toxaphene is an exceptionally dangerous waste consitutent. It is extremely toxic, highly bioaccumulative, and has been reported to cause cancer in laboratory animals. It is also a potent teratogen and has been shown to be mutagenic. Toxaphene is regulated as a toxic pollutant under §307(a) of the Clean Water Act. After an adjudiciative

*No data is currently available on the amount of wastewater treatment sludges (settled solids) generated at the Vertac plant. Nor is any data available on the concentrations of toxaphene in these sludges.

proceeding, a discharge concentration limitation of 1.5 ppb has been established for toxaphene discharges into navigable waters, and this discharge limitation was judicially upheld in Hercules, Inc. v. EPA, 598 F. 2d 91 (D.C. Cir 1978). (The administrative and judicial records are incorporated by reference into this listing background document.) The Agency has also established a national interim primary drinking water standard of .005 mg/1 for toxaphene. (That administrative record is likewise incorporated by reference.)

The wastes are listed as toxic based on the potential for waste mismanagement and resulting environmental harm. Toxaphene is both mobile and persistent, having frequently been found in clarified and treated municipal drinking water.(18) Existing waste management methods could lead to release of waste toxaphene. Wastewaters are presently treated in holding ponds. Waste treatment sludge, if generated, is now disposed in landfills and unlined lagoons. Disposal in landfills represents a potential hazard if the landfill is improperly designed or operated. This can result in leaching of hazardous compounds and subsequent contamination of ground water. Disposal in unlined lagoons also represents a potential hazard since the wastes may leach directly into the ground, resulting in possible groundwater contamination. Care must be taken to ensure that the lagoons and landfills used for storage or disposal of the toxaphene product wastes are properly designed and operated (e.g., lined with an appropriate thickness of impervious materials or provided with leachate collection/ treatment systems) to prevent contamination of groundwater or surface water.

Prior to disposal in the "009" landfill, the Hercules plant treats these wastes in holding ponds which, if not properly designed and operated, may result in groundwater or surface water contamination. The high water table and the sandy composition of the soil at the location of the Hercules plant in Brunswick, Ga., make careful managment of these wastes particularly important. (13)*

Wastewater treatment sludge could also create a hazard if improperly managed. Although the sludges appear to be managed properly at the present time (suggesting that industry regards these wastes as hazardous), proper management of an otherwise hazardous waste does not make the waste non-hazardous.

One final reason for regulatory concern is noteworthy. Since toxaphene bioaccumulates in environmental receptors by factors of as much as 300,000[7], if only a small amount leaches into the environment, a serious health hazard would be created. In the soil, toxaphene may persist from several months to more than 10 years (soil half-life is 11 years, Appendix B). It has also been shown to persist for up to 9 years in lakes and ponds.[7] Thus, the potential for human exposure is considerable. The potential for substantial hazard is, therefore, very high.

The need for the most careful management of toxaphene-containing substances is thus well-establilshed. In light of the documented health and environmental hazards associated with toxaphene, and the fact that substantial hazard is caused by ingestion of extremely small (ppb) toxaphene concentrations, the Agency believes it is justified in listing this waste.

*It should be noted that Hercules' past effluent management practices have not always been adequate, as Hercules has conceded that its past effluent discharge "'had an adverse effect upon the ecology' of local waters." (18)

B. <u>Health and Ecological Effects</u>

1. <u>Toxaphene</u>

<u>Health Effects</u> - Toxaphene is extremely toxic [oral rat LD_{50} = 40 mg/kg].[8] Death in humans from ingestion of this dosage has also been reported.[9] Toxaphene is also lethal to animals by inhalation and skin absorption at dosages of 1 g/kg or less.[10]

This chemical is teratogenic in mice when administered orally at a relatively small dose (350 mg/kg).[11] Toxaphene is carcinogenic in rats and mice, causing a significant increase in the incidence of thyroid and liver cancers when administered in the diet.[12] A significant increase in liver cancer has been reported in mice at dietary levels of 50 ppm.[15]

Toxaphene and its subfractions have been found mutagenic in the standard bacterial assay (*S. typhimuriumm*, strain TA100).[16]

<u>Ecological Effects</u> - Toxaphene is extremely toxic to fish, and toxic to lower aquatic organisms, birds, and wild animals. The LD_{50} (96-hour) of toxaphene in static bioassays is 3.5, 5.1 and 14 ng/l for bluegills, fathead minnows, and goldfish, respectively.[7] Toxaphene is also capable of producing deleterious effects in fish at levels as low as 0.39 ng/l, and bioaccumulates by factors of as much as 300,000.[7]

<u>Regulations</u> - Toxaphene has an OSHA standard for air, TWA = 500 mg/m^3 (Skin, SCP-F). Toxaphene is listed as a priority pollutant in accordance with §307(a) of the Clean Water Act of 1977. A 0.005 mg/l EPA National Interim Primary Drinking Water Standard has been established for toxaphene.

Industrial Recognition of Hazard - Toxaphene has been rated by Sax, Dangerous Properties of Industrial Materials(15) to be highly toxic through ingestion, inhalation, and skin absorption.

Additional information and specific references on adverse effects of toxaphene can be found in Appendix A.

IV. References

1. 1977 Directory of Chemical Producers. Stanford Research Institute. Menlo Park, California.

2. Proprietary information submitted by Hercules, Inc. to the U.S. Environmental Protection Agency in 1978 response to "308" letter.

3. Proprietary information submitted by Vicksburg Chemical Company to the U.S. Environmental Protection Agency in 1978 response to "308" letter.

4. Meiners, A. F., C.E. Mumma, T. L. Ferguson, and G. L. Kelso. Westwater Treatment Technology Documentation for Toxaphene Manufacture. Report prepared by the Midwest Research Institute for the U.S. Environmental Protection Agency. EPA-400/9-76-013. February 1976.

5. Telephone communication to: Ms. Jennifer Kaduck, State of Georgia, Land Protection Division, Department of Natural Resources, Atlanta, Georgia (404-656-2833), February 28, 1980 (Edward Monnig, TRW).

6. Telephone communication to: Ms. Jennifer Kaduck, State of Georgia, Land Protection Branch, Environmental Protection Division, Department of Natural REsources, Atlanta, Georgia, 12 February 1980. (S. Quinlivan, TRW).

7. Criteria Document for Toxaphene. U.S. Environmental Protection Agency. EPS-440/9-76-0k14. June 1976.

8. Special Publication of Entomoligcal Society of America. College Park, MD, Vol. 74:1 (1974).

9. Clinical Memorandum on Economic Poisons. U.S. Dept. HEW, PHS. COC, Atlanta, GA. p.1, 1956.

10. Council on Pharmacy and Chemistry. Pharmacologic Properties of Toxaphene, a chlorinated Hydrocarbon insecticide. JAMA 149:1135-1137, July 19, 1952.

11. Chernaff, N. and Carber, B.D. Fetal toxicity of toxaphene in rats and mice. Bull. Environ. Contam. Toxicol. 15:660-664, June, 1976.

12. National Cancer Institute. (1977) Guidelines for Carcinogensis Bioassays in Small Rodents. Tec. Rep. No. 1 Publ. No. 017-042-00118-8. U.S. Govn. Print. Office, Washington, D.C.

IV. <u>References</u> (Continued)

13. Telephone Communications to: Ms. Jennifer Kadinck, et al., State of Georgia, Land Protection Division, Department of Natural Resources, Atlanta, Georgia, 8 April 1980. (Robert Karmen, EPA)

14. Telephone Communication: John King (EPA) to Edward Monmig (TRW), 8 April 1980.

15. Litton Bionetics, Inc. Carcinogenic evaluation in mice. Toxaphene Final Report. LBI Project No. 20602. Kensington, MD. Submitted to Hercules, Inc., Wilmington, Del., Nov. 1978.

16. Hill, R.N. (1977) Mutagenicity Testing of Toxaphene Memo dated Dec. 15, 1977, to Fred Hageman. Off. Spec. Pestic. Rev. U.S. Environmental Protection Agency, Washington, D.C.

17. Sax, N. Irving, 1975. Dangerous Properties of Industrial Materials. Fourth Edition, Van Nostrand Reinhold, New York.

18. <u>Hercules, Inc. v. EPA</u>, 598 F. 2d 91, 99 (D.C. Cir. 1978).

19. Lawless, E.W. Pesticide Study Series -5- "The Pollution Potential in Pesticide Manufacturing," Technical Studies Report; TS-00-72-04. Washington, U.S. GPO, 1972.

MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI
STATE CHEMICAL LABORATORY
MSCL
MSU
BOX CR - MISSISSIPPI STATE, MISSISSIPPI 39762

November 18, 1986

DR. JAMES P. MINYARD, JR.
State Chemist

Analysis No. 726,113-131

Analysis of Sediments Marked:

Received on 10-31-86 from MS Bureau of Pollution Control
ATTN: Chuck Estes

Address P.O. Box 10385 Jackson, MS 39209

RESULTS:

Attached sheets present the results from our analysis of nineteen (19) sediment samples collected at Vicksburg Chemical Company. Samples were analyzed for acid and base/neutral priority pollutants, arsenic, toxaphene and dinoseb. Minimum quantifiable levels for the GC/MS analyses are shown on each priority pollutant data sheet and are expressed in micrograms per kilogram (or liter) as applicable.

Note that results for DNBP, Atrazine, Bladex, Methyl Parathion and various phenolic compounds are reported in the table on page 2 in Parts per Million. These results are expressed in Parts per Billion (micrograms per kilogram or liter) on the priority pollutant data sheets.

Copies of computer generated GC/MS data are enclosed.

RECEIVED
NOV 19 1986
DEPT ... E
BUREAU OF POLLUTION CONTROL

James P. Minyard Jr.
State Chemist

PLEASE GIVE NUMBER WHEN REFERRING TO THIS ANALYSIS

Laboratory Number	Sample Marked	Arsenic	Toxaphene	Aroclor 1254	DNBP	Atrazine	Bladex*	Others	
				****PARTS PER MILLION (mg per Kg)**					
726,113	A	43.8	536	***ND@10	64	21,000	1,700	1,2-Dichlorobenzene Methyl Parathion	20 400
726,114	B	7.1	223	58.4	40	3,000	---	---	
	EP EXT	0.07	ND@ 0.004	ND@0.004	3.7	37	5	---	
726,115	C	14.5	680	ND@10	770	9,000	3,000	---	
726,116	D	9.0	322	37.1	170	8,000	900	---	
726,117	E	143	2,320	ND@10	5,910	3,900	8,000	Methyl Parathion	400
726,118	F	66.9	541	ND@10	330	78,000	---	---	
	EP EXT	0.86	ND@0.1	ND@0.004	3.8	51	3	2,4-Dinitrophenol	Trace
	F TCLP	1.4	ND@0.04	ND@0.004	6.3	45	0.9	4-Nitrophenol	Trace
726,119	G	40.1	381	ND@10	1,100	30,000	---	4-Nitrophenol	50
726,120	H	7.9	6.3	ND@10	25	15,000	---	2,4-Dinitrophenol 4-Nitrophenol	Trace Trace
726,121	I	114	17.5	ND@10	1,600	8,000	---	4-Nitrophenol	70
726,122	J	216	18.1	ND@10	160	2,000	---	---	---
	EP EXT	1.6	ND@0.04	ND@0.004	3.7	49	---	---	---
726,123	K	108	1.8	ND@10	620	360	---	4-Nitrophenol	30
726,124	L	93.5	1.2	ND@10	15	220	---	4-Nitrophenol	Trace
726,125	M	29.2	ND@1	ND@10	11	13	---	---	---
726,126	N	41	ND@1	ND@10	10	230	---	---	---
726,127	O	57.8	ND@1	ND@10	4	1,500	142	---	---
726,128	P	16.9	22	51.9	6	1,000	---	4-Nitrophenol Pentachlorophenol	Trace 1.2
726,129	Q	46.2	29	4.7	92	300	20	---	---
726,130	R	50.3	4.6	9.2	60	5	---	---	---
726,131	S	96.5	42.9	33.8	---	---	---	---	---

*Bladex identified by computer spectral match; no standard shot to confirm retention time. Bladex concentration estimated relative to internal standard.
**Please note that all results are reported in Parts per Million (milligrams per kilogram or milligrams per liter). Our GC/MS results are normally reported in Parts per Billion (micrograms per kilogram or micrograms per liter).
***ND = None Detected @ stated Lower Level of Detection.

James P. Minyard, Jr.
State Chemist

Sampling Plan
Vicksburg Chemical Impoundment
MSD990714081
Vicksburg, Mississippi

Parameter: Toxaphene
Arsenic
Dinoseb
Acid Extractables
Base Neutral Compounds

Total Extractions will be run for all parameters. If any samples contain over 0.5 mg/l of toxaphene, then both the Extraction Procedures Toxicity and the Toxicity Characteristic Leaching Procedure will be run on the sample with the highest level of toxaphene.

Safety: Due to the nature of the material in the impoundment and the probability that the sampling will require the use of a boat, a separate site safety plan will be prepared by the contractor.

Equipment: Samples may be collected from a boat using shelby tubes, split spoons, push tubes, or equivalent methods.

Coring equipment used to collect samples should be such that disturbance of the soil column is minimized.

Sample containers and ice chests will be provided by the MBPC.

Sample Types: Grab sediment samples.

Split Samples: Splits of all samples will be offered to Vicksburg Chemical Company.

Sampling Points: A series of 26 discrete sample point locations have been selected on a 50 ft. grid for the impoundment with the exception of sample points 1 and 1A which will be taken near the mouth of the inlet pipe [see illustration #1].

Sample Compositing: The samples from the 26 discrete sampling points will be composited per the following scheme:

*6 ft. - 4 ft. core depth

	Sample Number
Composite discretes 1 & 1A	VC-A
Composite discretes 2 & 5	VC-B
Composite discretes 3 & 4	VC-C
Composite discretes 6, 7, & 8	VC-D

*4 ft. - 2 ft. core depth

Composite discretes 1 & 1A	VC-E
Composite discretes 2 & 5	VC-F
Composite discretes 3 & 4	VC-G
Composite discretes 6, 7, & 8	VC-H

*2 ft. - 0 ft. core depth

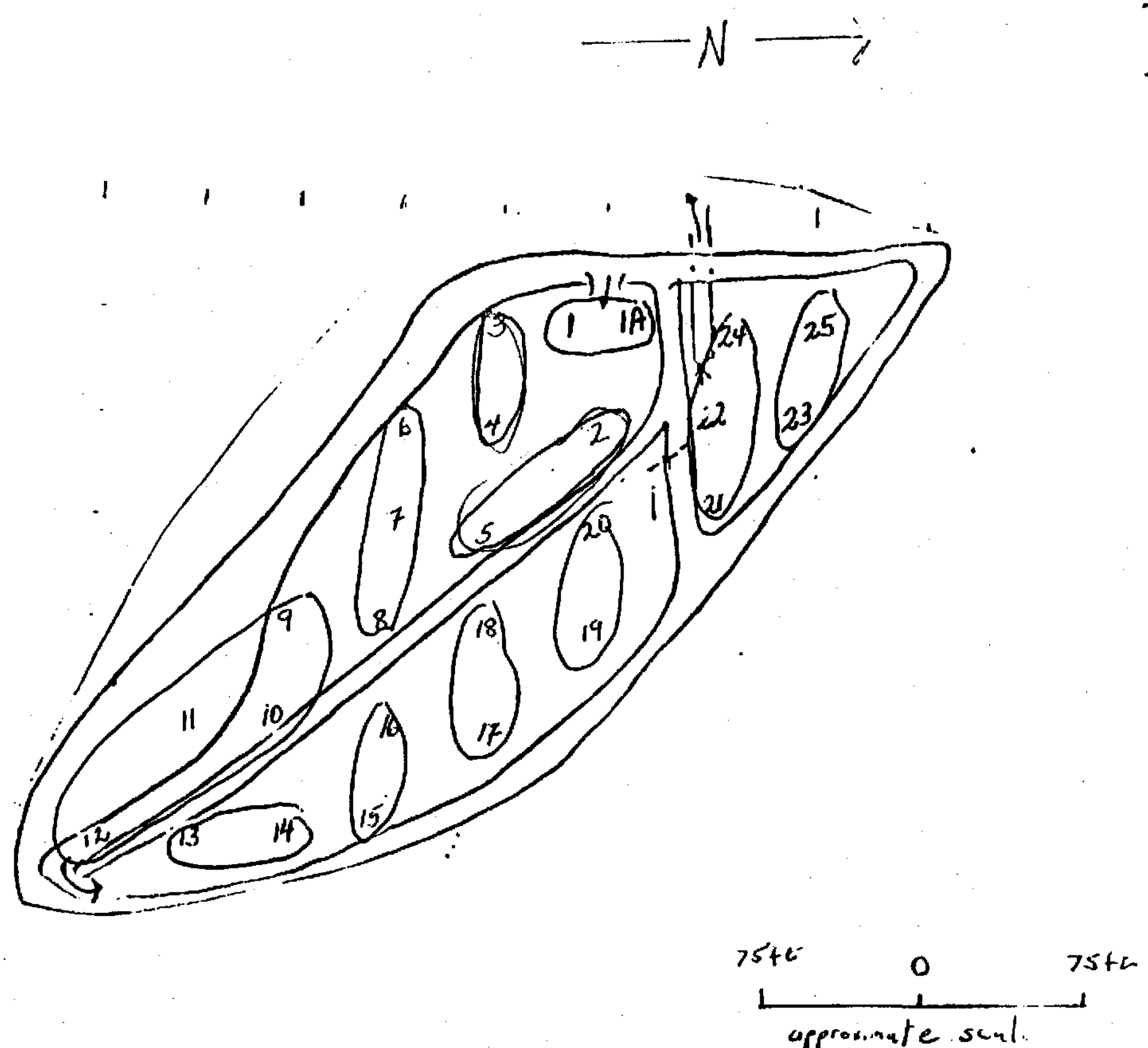
	Sample Number
Composite discretes 1 & 1A	VC-I
Composite discretes 2 & 5	VC-J
Composite discretes 3 & 4	VC-K
Composite discretes 6, 7, & 8	VC-L
Composite discretes 9, 10, 11 & 12	VC-M
Composite discretes 13 & 14	VC-N
Composite discretes 15 & 16	VC-O
Composite discretes 17 & 18	VC-P
Composite discretes 19 & 20	VC-Q
Composite discretes 21, 22, & 24	VC-R
Composite discretes 23 & 25	VC-S

Sample Collection: Samples 1, 1A, and 2 through 8 shall be collected in 2 ft. portions to a total depth of 6 ft. Sample points 9-25 should be collected to a maximum depth of 2 ft. Illustration #2 provides information as to the expected sediment depths. All samples will be collected according to EPA QA/QC standards. Samples shall be composited in glass or stainless steel bowls that have been cleaned with acetone and hexane and covered with aluminum foil prior to use. The samples will be thoroughly mixed using stainless steel spoons prior to placing in the sample container.

All sampling activities will be conducted under the supervision of a representative of MBPC.

JM:els

Illustration #1



50 ft grid

Surface Impoundment - V

CHARLES W. METCALF, 1840-1924
WILLIAM P. METCALF, 1872-1940
JOHN W. APPERSON, 1898-1985

CHARLES METCALF CRUMP
JERRE G. DUZANE
JOHN B. MAXWELL, JR.
ALLEN T. MALONE
PHILIP G. KAMINSKY
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MICHAEL E. HEWGLEY
JAMES F. RUSSELL
JOHN L. RYDER
TONI CAMPBELL PARKER
J. KEITH McCORMIC
MELODY W. OLIVER

SAMUEL RUBENSTEIN
JOHN HART TODD
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November 20, 1986

RECEIVED
NOV 24 1986
DEPT. OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

Mr. Sam Mabry
Director, Division
of Hazardous Waste
Mississippi Department of
Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

Re: In the Matter of: Mississippi Commission on Natural Resources v. Cedar Chemical Corporation Order No. 1046-86

Dear Sam:

I was shocked and disappointed to learn yesterday that the Commission deferred until the December meeting a ruling on Cedar's Motion to Dismiss the Complaint in the referenced matter, and adjourned without giving Walter Weems an opportunity to appear and state our position. In our conference call Tuesday, you agreed to put the matter at the heels of the agenda so that we would have an opportunity confer at noon and pick a time for Walter to appear, assuming the Bureau of Pollution Control was still planning to oppose entry of an order granting the motion. I realize you might not have been aware that the meeting would be adjourned in the morning, but someone could certainly have attempted to reach Walter by telephone as soon as that fact became apparent. Failing to do so was in my opinion inconsistent with the good faith course of dealings which I thought had been established between us.

To avoid any possible misunderstanding, this will confirm in writing what you were told during our conference call - that Cedar is unwilling to supplement the administrative record in this case in any form or fashion. Inasmuch as you advised that the Bureau now concedes that RCRA regulation of the pond is not required as a result of past dinoseb production at the plant (which was the <u>only</u> issue presented at the hearing), I cannot understand why the Bureau would want the Commission to continue to defer a ruling on the motion. We have said repeatedly, (and as I thought the Commission had already ruled) that if RCRA regulation of the pond should be asserted in the future on some basis other than that asserted in the hearing of September 16, 1986, a new proceeding would have to be initiated, giving Cedar an opportunity for a response to the new allegations and opportunity for hearing. Naturally, we hope such a hearing will not be necessary, but in the meantime, we believe that deferring a ruling on the present motion serves no purpose. If I have missed something, I wish you would enlighten me.

With regard to your continuing investigation into the regulatory status of the subject surface impoundment at the Vicksburg Plant, I would appreciate it if you would forward to me a copy of the analytical results of the sediment samples which the Bureau took in October. Your description of the results in our conversation on Tuesday sounded encouraging. I am particular pleased to know that, even utilizing the new methods of analysis proposed by EPA for determining the EP toxicity characteristic, toxaphene concentrations do not appear to be of regulatory significance.

Finally, this letter will supplement Cedar's November 10, 1986 response to questions 11-13 in your the questionnaire that you submitted on October 22, 1986, relative to past toxaphene production at the plant. I recently received and enclose herewith the document entitled Wastewater Treatment Technology Documentation For Toxaphene Manufacture, dated February 6, 1976, referred to in Footnote 4 to EPA's Listing Background Document for toxaphene production. The following information in the enclosed document should be useful to you in connection with the questions that have been raised:

> Hercules' production and waste handling processes at its Brunswick Plant are discussed at pages 7-24. Note that the schematic shown on page 11 of the document is the same as the one that Cedar believed to describe the Hercules' process, and is not the schematic that was included in the background document. This schematic clearly shows that in addition to spills and leaks from production and scrubber water from the HCl recovery process, Hercules also pumped plant process waste water to its settling ponds.

Appendix A in the report (which apparently was not received in time to be incorporated in the report itself) provides additional information regarding toxaphene waste treatment at Hercules' Brunswick Plant. The schematic at page A-3 graphically demonstrates the fact that toxaphene contaminated waste water was generated by Hercules' process in contradistinction to the process utilized at the Vicksburg Plant.

The Vicksburg process is described at pages 38-44. The document states that the only liquid waste produced in the toxaphene process at the Vicksburg Plant was neutralized HCl waste at about 10 gpm, which waste contained no detectible toxaphene. You may have already noted that the Footnote at page 6 of the Background Document makes it clear that the classification (K041) had nothing to do with any such wastes generated at the Vicksburg Plant. The fact is, there were no such wastes generated.

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We believe the observations and data reflected in the enclosed Wastewater Treatment document support Vertac's contention that HCL scubber water generated in connection with toxaphene production at the Vicksburg Plant in fact contained no detectible toxaphene concentrations. I have also spoken with R. A. Guidi, the engineer who for many years was responsible for operations at the Vicksburg Plant, and it is his opinion that from a chemical engineering standpoint, the scrubber water generated by the Vicksburg process would not have been expected to contain any toxaphene even at the low part per billion range. We submit, therefore, that it would be totally illogical to suppose that the relatively small quantities of HCL scrubber water generated at the Vicksburg Plant subsequent to November, 1980 should be classified as untreated toxaphene waste water (KO98) under RCRA.

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If you or other members of your staff have additional questions, please have your counsel (or John Harper, if he is serving in that capacity) contact me, or in my absence, Bill Smith, with the Brunini firm.

Sincerely yours,

Allen T. Malone

ATM:jw
Enclosures

cc: Mr. John Harper
Mr. William L. Smith
Mr. John C. Bumpers
Mr. Niven D. Morgan, Jr.
Mr. Fred Ahlers
Mr. John Hill

DIVISION OF SOLID WASTE
REVIEWED BY DM
DATE 11-25-86
COMMENTS toxaphene document maintained in separate file

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November 20, 1986

RECEIVED
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BUREAU OF POLLUTION CONTROL

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Sincerely yours,

Allen T. Malone

ATM:jw
Enclosures

cc: Mr. John Harper
Mr. William L. Smith
Mr. John C. Bumpers
Mr. Niven D. Morgan, Jr.
Mr. Fred Ahlers
Mr. John Hill

DIVISION OF SOLID WASTE
REVIEWED BY CAK
DATE 11-25-86
COMMENTS toxaphene document maintained in separate file

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4WD-RM

Mr. Charles H. Chisolm, P.E., Director
Bureau of Pollution Control
Mississippi Department of Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

Dear Mr. Chisolm:

The discussion of the regulatory status of Vertac Chemical Company (VCC) hinges around waste streams resulting from two operations: (1) the production of dinoseb, and (2) the past production of toxaphene. Based upon a review of the information submitted by VCC and available in the EPA compliance file, the surface impoundment at VCC is a RCRA regulated unit for the treatment, storage and disposal of K098 and K041 (untreated wastewater and wastewater treatment sludge from the production of toxaphene) and possibly P020 (any residue of any commercial product or manufacturing intermediate having the generic name listed in the paragraph 261.33(e) or (f) (dinoseb)). A summary of the facts in this matter are given below:

Toxaphene listing: VCC had a toxaphene wastewater stream which flowed into the surface impoundment through October 1982. This is confirmed by VCC's Notification of Hazardous Waste Activity, Part A Application, at least one EPA Inspection Report, the background listing document for K041 and K098, the February 6, 1976, "Wastewater Treatment Technology Documentation for Toxaphene Manufacture" published for the EPA by the Midwest Research Institute; VCC's response, dated November 10, 1986, to the information request from MSDNR; and in Mr. Allen T. Malone's (Attorney for Cedar Chemical) letter of November 20, 1986, to Sam Mabry. Several wastewater streams, some untreated, were discharged into the surface impoundment, thus justifying the listing for K098 (untreated process wastewater from the production of toxaphene). In addition, sludge has been found in the surface impoundment with concentrations up to 2,320 ppm toxaphene. This would meet the listing for K041 (wastewater treatment sludge from the production of toxaphene).

In the letter of November 20, 1986, Mr. Malone presents some specious arguments as to why the surface impoundment is not a regulated unit. These, along with responses, are given below:

1. Mr. Malone mentions that he is encouraged that the "... toxaphene concentrations do not appear to be of regulatory significance".

(3)

A. It is EPA's position that 2,330 ppm toxaphene is a major regulatory concern. Quoting from page 6 of the background listing document:

"Toxaphene is an exceptionally dangerous waste constituent. It is extremely toxic, highly bioaccumulative, and has been reported to cause cancer in laboratory animals. It is also been shown to be mutagenic. Toxaphene is regulated as a toxic pollutant under §307(a) of the Clean Water Act. After an adjudicatory proceeding, a discharge concentration limitation of 1.5 ppb has been established for toxaphene discharges into navigable waters, and this discharge limitation was judicially upheld in Hercules, Inc. vs EPA, 598 F. 2d 91 (D.C. Cir 1978). (The administrative and judicial records are incorporated by reference into this listing background document.) The Agency has also established a national interim primary drinking water standard of .005 mg/1 for toxaphene. (That administrative record is likewise incorporated by reference.)

The wastes are listed as toxic based on the potential for waste mismanagement and resulting environmental harm. Toxaphene is both mobile and persistent, having frequently been found in clarified and treated municipal drinking water."

2. Mr. Malone implies throughout the letter that since only the Hercules plant in Brunswick, Gerogia, is discussed in any detail in the background listing document, (BLD) the processes utilized at Hercules must be duplicated in order to have K041 and/or K098.

   A. It is EPA's position that the BLD is only used to provide a basis for listing a particular type waste stream and to give some examples of facilities that have this type waste stream. It is by no means inclusive of all possible variations that may result in a particular listed hazardous waste. If such were the case, the size of the BLD for woodtreating and electroplating wastes alone would dwarf the regulations themselves. The listings provided in 40 CFR 263.31-33 are designed to "stand on their own," with the BLD only providing limited clarification.

3. Mr. Malone implies that the VCC facility, its waste streams and its sludges, are entirely dissimilar to these described in the BLD.

   A. On page 3 of the BLD in a discussion of the two toxaphene manufacturers in the United States (Hercules and Vertac), the following statement is made:

   "Toxaphene is produced in essentially the same manner by both domestic manufacturers."

   The BLD further delineates the generated waste streams at the Hercules plant. The description includes "leaks, spills and washdowns" from the production area. This is analogous to VCC's sump and drain system which collected production spills and routed them to the surface impoundment. Although VCC's sump and drain system has been described enumerable times (albeit with

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greatly varying descriptions being provided) one only has to look to the first paragraph on page 6 of VCC's November 10, 1986, response to MSDNR's request for information to find documentation by VCC that leaks occurred and were routed untreated to the surface impoundment. As for the nature of the sludge found in the surface impoundment, the BLD mentions several times that toxaphene concentrations of 10,000 ppm were found in the wastewater treatment sludge at Hercules. At VCC, toxaphene concentrations in the wastewater treatment sludge were found in the hundred to thousands ppm range. This is certainly an appreciable level of toxaphene, and quite comparable to those found at Hercules.

4. Mr. Malone asserts that the toxaphene waste stream should be exempted by the "de minimus" exclusion found in 40 CFR 261.3.

   A. It is EPA's position that the de minimus exclusion only applies to "discarded commercial products" found in 40 CFR 261.33. The K041 and K098 listings are found in 40 CFR 261.32. Even if the de minimus exclusion was deemed relevant by some stretch of the regulations, the quantities and concentrations found in the surface impoundment preclude the losses from being de minimus.

5. Cedar Chemical states that "no toxaphene contaminated process wastewater or sludges of the type contemplated by EPA's background document were generated at the Vicksburg plant".

   A. EPA disagrees. The background document states that K041 wastewater "is generated from the toxaphene production process (leaks, spills and washdowns), as well as from the scrubbing of vent cases in the HCl absorption and recovery step. Cedar Chemical states on page six "the only 'wastestreams' associated with toxaphene production at the Vicksburg Plant would have consisted of de minimus losses occassioned by minor leaks and spills, and scrubber water generated from operation of the plant's air emission control procedures associated in connection with its HCl recovery system." By the company's own admission, they clearly meet the background document example of the K041 wastewater listing. De minimus is not applicable to §261.32 hazardous wastes from specific sources.

   Additionally, as the federal background document was developed, only two companies in the nation produced toxaphene--Hercules, Georgia and Vertac, Mississippi. A footnote in the background document states that no information is available from Vertac on the amount of wastewater treatment sludges generated.

6. The company submitted a schematic of the Vicksburg process (Attachment J) and the Hercules process (Attachment K). Their position is that the background document is based on the Hercules process which they state is different from their operation.

   A. EPA disagrees. The background document shows the Hercules schematic in Figure 1. This figure is different from Cedar Chemical's Attachment K submitted to represent the Hercules process. In

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fact, Figure 1 of the background document is identical to Attachment J of the Vicksburg process in the areas of concern (K041 and K098 production).

7. The company states that "Cedar believes that the sludge from toxaphene wastewater treatment referred to in the Background Document and classified as K098 under RCRA resulted from the filtration of toxaphene solution through diatomaceous earth in accordance with the process utilized by Hercules, Inc., at its Brunswick, Georgia Plant, producing, according to the Background Document, approximately 7 tons per day of sludge containing approximately 1% toxaphene by weight."

   A. This assumption is incorrect. As stated earlier, the definition for K098 wastewater is leaks and spills from the toxaphene production process along with scrubber effluent from the HCl recovery process not "the filtration of toxaphene solution through diatomaceous earth." In additition, the filtration of toxaphene solution is shown only on Attachment K submitted by Cedar Chemical Corporation to represent the filters the K098 scrubber wastewater through diatomaceous earth and lime to remove any toxaphene. [Cedar Chemical does not present this in their schematic; the correspondence from the company dated November 10, 1986, does not address what happens to the K041 scrubber water and leaks and spills; and this is critical in knowing the regulatory status of the facility].

8. Cedar Chemical states "no such sludge was produced in the process utilized at the Vicksburg Plant, nor did the Vicksburg toxaphene process involve the discharge of any untreated process wastewater, as that term was intended in connection with the K098 RCRA classification."

   A. The background document does not discuss "discharge of untreated process wastewater", therefore, this is not the correct definition for the K098 classification. It is true that treated process wastewater is not included under the listing, but Cedar Chemical does not state explicitly that they generate process wastewater to be treated; however, they do generate process wastewater (see discussion under #1) and the handling of the wastewater prior to treatment would be regulated.

9. Cedar Chemical concludes by stating that "It is believed that the Vicksburg Plant was able to avoid the generation of process wastewater (K098) and sludge (K041) of the type generated by Hercules, Inc., at its Brunswick, Georgia Plant by utilizing high purity camphene, which it purchases as a raw material (toxaphene being produced by the chlorination of camphene). Hercules produced a relatively low purity product requiring substantial filtration which the Vicksburg Plant process did not require.

   A. EPA disagrees. The background document states that the K098 is generated from production spills and leaks and the scrubbing of HCl vent gases. It also states that K098 is generated from treatment of the K041 wastewater. It is unclear how Cedar Chemical "avoid(s) the generation of process wastewater due to a difference in camphene." Also, the reference to the filtration is Hercules' method of wastewater treatment, not production.

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10. Mr. Malone stated in the letter of November 20, 1986, that: "You may have already noted that the footnote at page 5 of the background document makes it clear that the classification (K041) had nothing to do with any such waste generated at the Vicksburg plant."

    A. The grounds for this conclusion are not appropriate. The footnote merely states that data on the wastewater treatment sludges at Vertac were unavailable. In talking with personnel at Headquarters, it was found that this was apparently because (1) Vertac did not have such information, (2) were unwilling to provide such information, and/or (3) were unwilling to allow EPA to gather such information.

11. Mr. Malone states in the November 20, 1986 letter, that the "HCL scrubber (sic) water generated in connection with toxaphene production at the Vicksburg plant in fact contained no detectable toxaphene concentrations." He then concludes that it would be "illogical" to regulate the impoundment.

    A. The facts are rather clear that:

        i) Wastewater (some untreated) from the toxaphene production area was routed to VCC's surface impoundment, meeting the listing for K098.

        ii) Large quantities of sludge, with high concentrations of toxaphene present have been found in VCC's surface impoundment. These sludges were formed from wastewater emanating from VCC's toxaphene production area. This meets the listing for K041.

        iii) Based on this information, it would be illogical not to regulate the surface impoundment as handling K041 and K098.

Dinoseb Listing: Since 1980, EPA and MSDNR have maintained that the surface impoundment at VCC regularly received, and therefore was a regulated unit for treatment, storage, and disposal of P020 (found in 40 CFR 261.33(e)). Only recently, when VCC was informed that the surface impoundment must go through full 265 closure (vis-a-vis LOIS) has VCC maintained that the unit should not be regulated due to the de minimus exclusion. VCC's argument has two supporting foundations: (1) By extrapolation of sampling data, the amount of losses from VCC's operations are rather small on a daily basis, and (2) the only source of dinoseb flowing into the impoundment was from the production area, i.e., that no dinoseb from the drum storage area goes into the impoundment. These assertions are addressed below:

1. Small quantities: During the MSDNR-BPC commission hearing held on September 15, 1986, VCC presented Mr. Gary Dietrich, a former Deputy Director for the EPA, as an expert witness. Among other things, Mr. Dietrich presented some rough calculations as to the quantity of waste dinoseb deposited into the surface impoundment and plant site. Mr. Dietrich states that approximately 1365 pounds of dinoseb have

been deposited in the surface impoundment over 13 years (found on page 26 of the hearing transcript). This is based on an estimated volume of sludge in the impoundment, and assumed a dinoseb concentration range of 2-173 ppm. If we assume Mr. Dietrich's basic logic is correct, there are still some problems with his calculations:

a. Mr. Dietrich used average dinoseb concentrations of 12, 74, & 39 ppm. The most recent sampling data indicates dinoseb concentrations up to 5900 ppm, making his calculations off by a factor of roughly 100. If we assume, as a conservative estimate, that his average concentrations are off by a factor of 50, that would make approximatley 58,500 pounds of dinoseb in the impoundment.

b. Mr. Dietrich used a sludge depth of 3.9 feet. The most recent sampling has shown significant concentrations of dinoseb in the sludge to a depth of 6 feet. Accounting for the increase in volume this would make the total amount of dinoseb deposited around 87,750 pounds.

c. Mr. Dietrich calculated the dinoseb losses per day based on twice his calcuated value of 1365 pounds, yielding on average loss .6 pounds per day to the impoundment. This calculation is based on several erroneous assumptions:

   1) Mr. Dietrich does not account for the dike breach in 1983, in which the entire liquid content, and undoubtably some of the sludge content, was emptied into a nearby stream.

   2) Mr. Dietrich assumes the surface impoundment received dinoseb waste every day for 13 years. This does not allow for the period when the dike broke and/or shut downs in the dinoseb process.

   3) No accounting was made for the material apparently taken from inside the impoundment and used to repair a washout in the dike in 1985.

   4) A well run facility with only de minimus losses would surely not have leaks as an every day part of their operation.

Even working with Mr. Dietrich's assumption of 13 continuous work years (4745 days), this would give a dinoseb loss of 18.49 pounds per day to the surface impoundment alone. This also assumes that the material spilled was 100% dinoseb, not a commercial grade or intermediate product. This would indicate that an even greater amount of material was spilled. This is an extremely large quantity of such a highly toxic substance to spill on a daily basis.

2. Only Production Losses: During the September 16, 1986, commission hearing, and in several recently submitted documents, VCC has stated that no waste from their drum storage went to the surface impoundment. This brings up several questions:

   a. Why is it that the sump in the drum storage area has never been routed to the surface impoundment like every other sump and drain in the South Plant (with the exception of the MSMA area)?

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b. In VCC's Part B application, the statement is made:

"...soil within plant boundaries will additionally flow as sediment particles during rain. The sediment particles will settle within the 3 million gallon surface impoundment. It is possible that some of the soil may have been contaminated by operations in the past and be categorized as P020 (dinoseb) or P123 (toxaphene)."

If it is true, as VCC has maintained, that the only spills have been de minimus losses in the production area (which has a concrete floor and drainage system), then how and when did the soil become contaminated? Mr. Dietrich, in the September 16, 1986, commission hearing, indicated that soils in and around the plant area have dinoseb concentrations in the 1 to 10 ppm range. How did this material get there?

c. Also, in VCC's Part B application is the statement that: "Spills and leaks from the process area or product storage area or water from clean up of such a spill fall within P020 of RCRA paragraph 261.33. Such spills flow to the 3 million gallon surface impoundment." If VCC acknowledges spills and clean up of spills of commercial product (meeting exactly the description found in 40 CFR 162.33(e)), why should this be exempted from regulation?

d. VCC has submitted and agreed to 3 previous BPC commission orders (November 11, 1983; June 18, 1984; and November 22, 1985). In each of these commission orders, VCC has agreed that the surface impoundment is a RCRA regulated unit. Why now should the EPA not believe VCC's earlier admissions? Is the impoundment operated differently? If so, why has VCC not sought either to have the impoundment delisted or closed?

e. All EPA inspection reports and inspectors back to 1981 have indicated that spilt material from the drum storage area has flowed to the surface impoundment. Why has VCC provided EPA inspectors with this information in the past and then recently changed the process description?

f. On February 21, 1985, Mr. Dick Karkkainen, Director of Environment and Safety, VCC, sent a letter to Mr. Chuck Estes. In that letter the following statement was made: "the purpose of the impoundment is to collect rainwater run off from the south plant and serve as a spill collection system in the south plant (spills will flow through the drainage system to the impoundment or will flow to a sump and be pumped to the impoundment). The exception to this flow pattern is the MSMA plant where rainwater and spills are contained within MSMA plant boundaries." If, as VCC maintains, the sump and drain system in the drum storage area is not connected to the surface impoundment, why did Mr. Karkkainen state that the <u>only</u> exception to the normal South Plant drainage system is the MSMA plant?

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g. Also in the February 21, 1985, letter to Mr. Estes, Mr. Karkkainen concedes that "...we have deferred to the judgement of the Bureau of Pollution Control that the impoundment is a hazardous waste unit...". Why, after six years of RCRA regulation, has VCC changed this position, other than that it is now faced with the expense of RCRA closure?

h. If Vertac Chemical originally submitted a Part A application as a protective filer, why did they not indicate this, until 1986, either on the Part A application or in some correspondence with EPA or MSDNR?

i. VCC has already detected significant levels of dinoseb contamination in the groundwater and, as of yet, has not proceeded with any action to delineate the size and extent of the plume of contamination. How can such groundwater contamination result from de minimus losses at a "well run" facility in a "well-maintained" surface impoundment?

In citing the "de minimus" exclusion found at 40 CFR 261.3(a)(2)(iv)(D):

"A discarded commercial chemical product, or chemical intermediate listed in 261.33, arising from de minimis losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process. For purposes of this subparagraph, "de minimus losses include those from normal material handling operation (e.g. spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks or process equipment, storage tanks or containers; leaks from well-maintained pump packings and seals; sample purges; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinses from empty containers or from containers that are rendered empty by that rinsing."

VCC has maintained that they have had only "minor leaks of process equipment." However, judging from the quantity and concentrations of dinoseb found throughout the facility, the "minor leaks" theory is questionable. In reviewing the facility file, past inspection reports, past Commission Orders, the extensive history of non-compliance, and recent sampling data, the concept that any operation at this facility is "well maintained" is not established. VCC has presented so many conflicting statements regarding their dinoseb operation that to accept on face value their recent assertion of the de minimus exclusion would be premature and ill-founded. It is, therefore, recommended that the surface impoundment be regulated as treating, storing, and disposing of P020.

As a side issue, the sump in the drum storage area apparently serves now as a catch basin only. Recent guidance from the Office of Solid Waste indicates that this unit should be regulated as a hazardous waste storage tank (if it can be certified as a tank) or as a land disposal unit.

Sincerely yours,

James H. Scarbrough, P.E., Chief
Residuals Management Branch
Waste Management Division

cc: Mr. Sam Mabry, Mississippi Department
of Natural Resources

//

James E. Scarbrough, Chief
Residuals Management Branch, Region IV

Matt Strauss, Chief
Waste Identification Branch
Office of Solid Waste, HQ

As was discussed with Ms. Lebleu-Biswas of your staff on December 15, 1986, I am forwarding to you a complete packet of information on the Vicksburg Chemical Corporation (VCC), Vicksburg, Mississippi. The regulatory issues at VCC stem from two areas (1) VCC's claim to the "de minimus" exclusion (found in 40 CFR 261.3) for their dinoseb (P020) waste streams, and (2) whether the facility's past toxaphene waste streams met the listing requirements for K041 and K098. Region IV Waste Compliance Section requests confirmation of its decision that VCC's surface impoundment is a RCRA regulated land disposal unit.

Below is an outline of the pertinent documents (along with a brief description of each document) submitted for review:

Document #1

Letter from James H. Scarbrough, Chief, Residuals Management Branch Region IV, EPA to Sam Mabry, Director, Hazardous Waste Division, Mississippi Department of Natural Resources.

This document outlines Region IV's position that VCC's surface impoundment is a regulated unit. In addition, it addresses several specific arguments brought forward by VCC on the dinoseb and toxaphene issues.

Document #2

This is a copy of analytical data sampled throughout VCC's "south plant". The first set of data is a series of sludge samples taken from the surface impoundment (note the extremely high levels of both dinoseb and toxaphene). The second set of data is taken from various sights at VCC. Note that pond No. 1 and lagoon No. 2 are contiguous parts of VCC's surface impoundment, and are considered to be one unit. Also, note that the "returned product area" is VCC's hazardous waste drum storage area.

Document #3

A series of EPA inspection reports dating back to July 27, 1981. Note the repeated drum storage spills, violations and the general description of contamination throughout the site.

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Document #4

A copy of data from a grab sample taken in 1983 from the area near the impoundment as described.

Document #5

A letter from Allen T. Malone, Attorney for Cedar Chemical Corporation (the parent company of VCC) to Sam Mabry. This letter presents VCC's arguments concerning the toxaphene issues. The attachments to this letter include schematics of VCC's operation.

Document #6

A letter from VCC giving some basic descriptions of VCC's spill collection system. The "modifications" described in paragraph #1 were actually repairs to the dike after it failed in 1983.

Document #7

An excerpt from VCC's Part B application. Note the description of the process wastes streams and VCC statement that P020 is generated.

Document #8

Three Mississippi Commissioners Orders against VCC. These Commissioners Orders demonstrate that VCC has consented to regulation several times in the past. It is only when faced with closure have the exemption issues come forth.

Document #9

The transcript of the Mississippi Commission meeting discussing the regulation of VCC for dinoseb.

If you have any questions, please call Paul Peronard (FTS 257-7603). Thank you for your prompt attention.

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Vertac Chemical Corporation

Environmental Engineer
West Compliance Unit

Matt Strauss, Chief
Waste Identification Branch, EPA HQ's

Per our phone conversation of December 1, 1986, I am forwarding to you information generated by Vertac Chemical Corporation, in defense of their position that their surface impoundment is not subject to RCRA regulation. Specifically, that they do not generate nor have ever generated K041 and K098.

We are requesting your offices input as to whether or not their argument is correct. We are to respond to the state no later than COB 12/8/86, therefore, we request feedback from your office early Monday morning (12/8/86).

Thank you for your assistance. If you have any questions, please call me or Paul Peronard at FTS 257-7603.

Jeaneanne M. Gettle

Commission Hearing

Director, Waste Management Division
U.S. Environmental Protection Agency, Region IV

Marcia Williams, Director
Office of Solid Waste

This requests that Matt Strauss, Chief of the Waste Identification Branch, attend the May 27, 1987, Mississippi Department of Natural Resources Commission hearing in Jackson, Mississippi. He is needed to testify as to his determination on the regulatory status of Vertac Chemical Corporation, Vicksburg, Mississippi.

Mr. Strauss' testimony in the May hearing is critical to the states case, because of his expertise in this area. He became involved in this case at the request of EPA Region IV. Mr. Strauss visited the above-mentioned facility and studied documents pertaining to the argument that the facility is not regulated for toxaphene wastewater (K098), sludge generated in toxaphene production (K041) and dinoseb (P020). In January the commission ruled the facility not regulated for P020, however, they will rule on the toxaphene issue in May.

Mississippi has not yet received Mr. Strauss' written report and has asked that it be sent as soon as possible. The State needes to review the report and allow the company time to do so prior to the hearing.

If you require additional information regarding this matter, contact Doyle T. Brittain of my staff at FTS 257-7603, or Sam Mabry of the Mississippi Department of Natural Resources at (601) 961-5171.

Patrick M. Tobin

Summary
of
Results
of Late
October Impoundment
Sampling
at
Vicksburg Chemical

Lab #	Marked	Oil PPM	Toxaphene [PPM]	PCB (PPM) (Aroclor 1254)	DNBP mg/kg	Ultrazine mg/kg	[illegible] mg/kg	[illegible]
6113	A *	43.8	536	ND at 10 PPM	64,000	11,000,000	1,700,000	Methyl parathion
6114	B ✓	7.1	223	55.4	40,000	3,000,000		
	EP EXT B	0.067	ND @ 0.004	ND @ 0.004	3,700	37,000	5,000	
6115	C □	14.5	650	ND @ 10	770,000	4,000,000	3,000,000	
6116	D ○	9.0	322	37.1	170,000	8,000,000	900,000	
6117	E *	143	2,320	ND @ 10	5,910,000	39,000,000	5,000,000	Methyl Parathion
118	F ✓	66.9	541	ND @ 10	330,000	78,000,000		
	EP EXT F	0.16	ND @ 0.1	ND @ 0.004	3,800	51,000	3,000	2,4 dinitrophenol
	TCLP F	1.36	ND @ 0.04	ND @ 0.004	6,300	45,000	700	4-nitrophenol - 5
119	G □	40.1	381	ND @ 10	1,100,000	30,000,000		4-nitrophenol - 5
120	H ○	7.9	6.33	ND @ 10	25,000	15,000,000		4-nitrophenol - 1; 2,4-dinitrophenol -
121	I *	114	17.5	ND @ 10	1,600,000	8,000,000		4-nitrophenol -
122	J ✓	216	18.1	ND @ 10	160,000	2,000,000		
	EP EXT J	1.6	ND @ 0.04	ND @ 0.004	3,700	49,000		
123	K □	108	1.82	ND @ 10	620,000	360,000		4-nitrophenol -
124	L ○	93.5	1.18	ND @ 10	15,000	22,000		4-nitrophenol -
125	M	29.2	ND @ 1	ND @ 10	11,000	13,000		
126	N	41.0	ND @ 1	ND @ 10	10,000	230,000		
127	O	57.8	ND @ 1	ND @ 10	4,000	1,500,000	143,000	4-nitrophenol -
128	P	16.9	22.0	51.9	6,000	1,000,000		pentachlorophenol
129	Q	46.2	29.1	4.65	92,000	300,000		
130	R	50.3	4.60	9.16	60,000	5,000		
131	S	96.5	42.9	33.8				

ND - none detected at stated level

Results of Samples
taken at Vicksburg Chemical
9-3-86

note: Vicksburg Chemical analyzed for additional parameters, including toxaphene, but we don't have those results

Summary

SAMPLE RESULTS - VICKSBURG CHEMICAL

Sample #	Sample Type/Location	DNBP(ppm)	Atrazine(ppm)	Total chrome ppm	Total Arsenic ppm	Total Lead ppm
VC-1	Water; Influent pipe to lagoon	8	0.03			
VC-2	Water; Influent pipe to lagoon			0.03	.29	.008
VC-3	Sludge; Pond No. 1	13,000	5			
VC-4	Sludge; Pond No. 1			123	362	142
VC-5	Water; Lagoon No. 2	6	0.03			
VC-6	Water; Lagoon No. 2			.05	.74	.01
VC-7	Sludge; Lagoon No. 2	5.8				
VC-8	Sludge; Lagoon No. 2			10.2	21	5.3
VC-9	Water; sump near returned product area	130	15			
VC-10	Water; sump near returned product area			.03	2.47	.05
VC-11	Water; sump below product drumming area	260	.2			
VC-12	Water; sump below product drumming area			108	.68	2.9
VC-13	Solids; returned product area	330,000				
VC-14	Solids; returned product area			47.1	44.3	16.7
VC-15	Soil; N.W. of NDBP plant	96				
VC-16	Soil; N.W. of DNBP plant			40.1	27.8	170
VC-17	Water; sump N.W. of DNBP plant	300	0.01			
VC-18	Water; sump N.W. of DNBP plant			<.03	.02	.02

TOXAPHENE SCHEMATIC

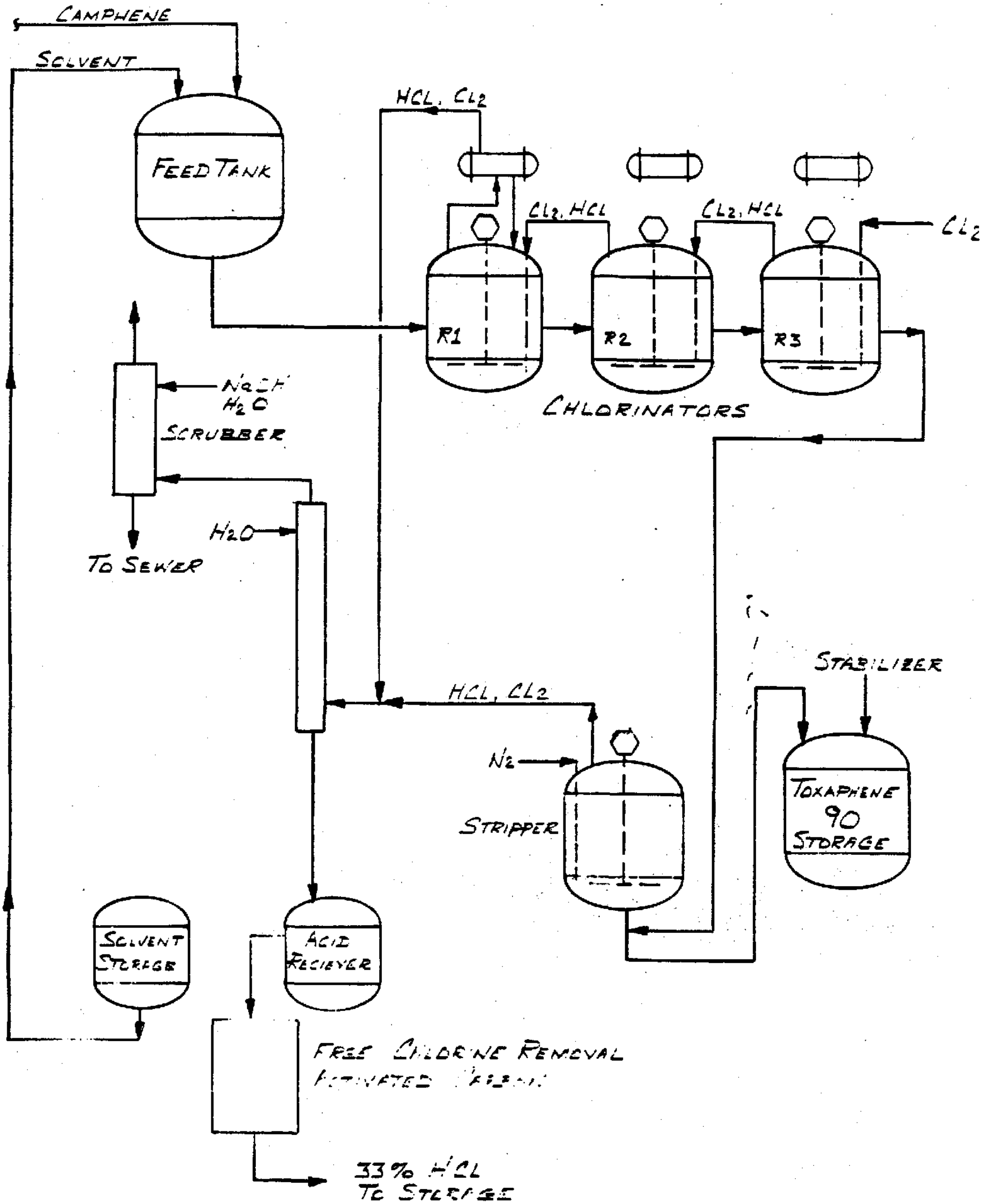


Figure 1

FILE COPY

October 29, 1986

Mr. Fred Ahlers
Plant Manager
Vicksburg Chemical Company
P. O. Box 3
Vicksburg, Mississippi 39180

Dear Mr. Ahlers:

Re: Sampling
Vicksburg Chemical Company Impoundment
MSD990714081

This letter serves to formally notify you that the Mississippi Bureau of Pollution Control (MBPC) has contracted with Bonner Analytical Testing Company in Hattiesburg, Mississippi for the collection of sediment/sludge samples from the above referenced impoundment. Members of the sampling team will include Mike Bonner and Tom Wilson.

The purpose of the sampling is to better determine the regulatory status of the impoundment. Sampling will be conducted in general accordance with the attached sampling plan, with the understanding that the actual distance between the sampling points may be adjusted in the field at the discretion of Mike Bonner, depending on the size of the impoundment, depth of the sediment, location of physical structures on or around the impoundment, etc.

A MBPC representative will be present during the sampling activities. Splits of all samples will be offered to your designated representative.

If you have any questions concerning this matter, please contact me.

Sincerely,

Sam Mabry, Director
Division of Solid Waste Management

SM:els
cc: Mr. Bill Smith

FILE COPY

October 22, 1986

Mr. Fred Ahlers
Plant Manager
Vicksburg Chemical Corporation
P. O. Box 3
Vicksburg, Mississippi 39180

Dear Mr. Ahlers:

Re: Questions Relating to the Hazardous Waste Regulatory Status of Vicksburg Chemical Corporation

Enclosed is a list of questions related to operations at the Vicksburg Chemical Corporation since November 19, 1980. Answers should help the Bureau of Pollution Control determine whether there is a basis under the Mississippi Hazardous Waste Management Regulations (MHWMR) for regulation of your Company's surface impoundment.

The Company's written response to the questions with any associated documentation should be provided to the Bureau by November 6, 1986.

Please call me at 961-5171 if you have any questions.

Sincerely,

Sam Mabry, Director
Hazardous Waste Division

SM:sae
Enclosures
cc: Mr. Bill Smith
Mr. Allen Malone
Mr. James H. Scarbrough

Questions to be Answered by Vicksburg Chemical Corporation

General Questions

1. Provide a list of all products and identifiable intermediates produced by the Vicksburg facility (both north and south plants) since November 19, 1980. Include with this list the time period(s) in which each product was produced and the quantities produced.

2. Identify all waste streams associated with the above-mentioned products. Detail the constituents in each waste stream, the route and ultimate fate of each waste stream, the time of existence of each waste stream, and the quantities involved in each waste stream. This should include all leaks, spills and regular process waste streams.

3. Designate which of the above waste streams VCC considers to be hazardous waste, and provide determination date and reports required by 40 CFR 262.11.

4. Provide any and all piping and flow diagrams (in addition to those submitted to the Bureau of Pollution Control on September 16, 1986), concerning the handling of waste streams since November 19, 1980. Indicate any changes made to the piping or flow patterns of waste streams since November 19, 1980. This should include all pertinent piping (above and below ground), open areas, ditches and/or lagoons at both the north and south facilities.

5. Provide a descriptive listing of all hazardous waste either received by VCC or shipped off-site. Indicate quantities and types manifested and all data and reports generated to determine the nature of the waste as required by 40 CFR 262.11.

6. Provide a copy of any spill reports made under the NPDES program or the CERCLA program.

Questions Relating to Specific Waste Streams

7. Has Vicksburg Chemical produced chlordane, methyl parathion or disulfoton, since November 1980?

8. If so, has any of the wastewater from the production of the above products been placed in the surface impoundments?

9. If the process wastewater was not placed into the impoundment, how was it handled?

10. If the process wastewater was placed into the impoundment, was the wastewater treated prior to its entering the impoundment?

11. EPA's background document for the listing of untreated toxaphene wastewater (K098) and sludges from toxaphene wastewater treatment (K041) specifies, "wastewater is generated from the toxaphene production processes (leaks, spills, and washdowns), as well as from the scrubbing of vent gasses in the HCL absorption and recovery step." Cedar Chemical should provide a detailed schematic of its toxaphene production process at the Vicksburg plant, describing how wastewater such as that described above was handled. If the Vicksburg plant did not generate such a wastewater, an explanation of how such wastewater generation was avoided should be provided. (A copy of the background document is enclosed.)

12. In an August 16, 1984, letter to the Mississippi Bureau of Pollution Control (MBPC), Vertac states, "In reviewing our past toxaphene discharge data I find that Vertac's last permit excursions occurred on February 16, 1982 (11.5 ppb)." Cedar Chemical should provide an explantion of the source of this toxaphene in the wastewater. (A copy of the letter is enclosed.)

13. On February 17, 1983, the MBPC sampled both the sludge from the east side of the impoundment and the stream bank on the east side of the impoundment where the impoundment dike had failed. Analysis of these samples indicated the sediments contained 280 ppm and 360 ppm of toxaphene respectively. Cedar Chemical should provide an explanation of the source of the toxaphene found in impoundment sediment samples. (Copies of the analytical results are enclosed.)

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

August 16, 1984

Mr. William Stephen Spengler, P.E.
Bureau of Pollution Control
Industrial Waste Water Section
P.O. Box 10385
Jackson, MS 39209

Dear Steve:

In reviewing our past toxaphene discharge data I find that Vertac's last permit excursions occurred on February 16, 1982 (11.5 ppb). Since that time production has ceased and there have been no significant toxaphene concentrations reported. Would it be possible for us to continue our monitoring but on a less frequent basis than specified in our permit?

Sincerely,

Lynn Gunnison

LG/ld

BUREAU OF POLLUTION CON
SAMPLE REQUEST FORM

Lab Bench No. 142

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.

County Code Warren NPDES Permit No. ______

Discharge No. ______ Date Requested ______

Sample Point Identification impoundment

Requested By Chuck Estes Data To Chuck Estes

Type of Sample: Grab (x) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:

Environment Condition sunny and cool Collected By Chuck Estes

Where Taken east side of impoundment near breech area

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene, Atrazine, Cyanazize	cool	2/7/83	3:00
2.	Sludge	DNBP	5ml H2SO4	"	3:15
3.		(Run totals and Ep			
4.		extract for these			
5.		parameters)			

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (x) field truck

V. LABORATORY: Received By DeJonnette King Date 2/8/83 Time 0815

Recorded By Dorothy Lewis Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result		Analyst	Date Measure
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	( )		mg/1		
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	( )		mg/1		
Cyanide	(000722)	( )		mg/1		
Atrazine (EPT)		(x)	12550	ug/1	MB	3-15-83
Cyanozine(EPT)		(x)	650	ug/1	MB	3-15-83
Toxaphene(EPT)		(x)	< 20	ug/1	MB	3-15-83
DNBP (EPT)		(x)				
Atrazine (Total)		(x)	7,030	mg/kg	MB	4-11-83
Cyanozine (Total)		(x)	< 112	mg/kg	MB	4-11-83
Toxaphene (Total)		(x)	280	mg/kg	MB	4-11-83
DNBP (Total)		(x)				
		( )				
		( )				

Remarks DNBP results will follow

*Date of Test Initiation

BUREAU OF POLLUTION CON

SAMPLE REQUEST FORM

Lab Bench No. 142

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.

County Code Warren NPDES Permit No.

Discharge No. Date Requested

Sample Point Identification impoundment

Requested By Chuck Estes Data To Chuck Estes

Type of Sample: Grab (X) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:

Environment Condition sunny and cool Collected By Chuck Estes

Where Taken east side of impoundment near breech area

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene, Atrazine, Cyanazine	cool	2/7/83	3:00
2.	Sludge	DNBP	5ml H2SO4	"	3:15
3.		(Run totals and Ep			
4.		extract for these			
5.		parameters)			

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (X) field truck

V. LABORATORY: Received By DeJonnette King Date 2/8/83 Time 0815

Recorded By Dorothy Lewis Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	( )		mg/1		
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	( )		mg/1		
Cyanide	(000722)	( )		mg/1		
Atrazine (EPT)		(X)	12550	ug/1	MB	3-15-83
Cyanozine (EPT)		(X)	650	ug/1	MB	3-15-83
Toxaphene (EPT)		(X)	< 20	ug/1	MB	3-15-83
DNBP (EPT)		(X)				
Atrazine (Total)		(X)	7,030	mg/kg	MB	4-11-83
Cyanozine (Total)		(X)	< 112	mg/kg	MB	4-11-83
Toxaphene (Total)		(X)	280	mg/kg	MB	4-11-83
DNBP (Total)		(X)				
		( )				

Remarks DNBP results will follow

*Date of Test Initiation

BUREAU OF POLLUTION CON[redacted])

SAMPLE REQUEST FORM   Lab Bench No. 141

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.

County Code warren   NPDES Permit No.

Discharge No.   Date Requested

Sample Point Identification stream bank

Requested By Chuck Estes   Data To Chuck Estes

Type of Sample: Grab (X) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:

Environment Condition sunny and cool   Collected By Chuck Estes

Where Taken on the east side of the impoundment levee at the breech area near the stream

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene,Atrazine,Cyanazine	Cool	2/7/83	3:10
2.	Sludge	DNBP	5ml H2SO4	2/7/83	4:00
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (X) Field truck

V. LABORATORY: Received By DeJonnette King   Date 2/8/83   Time 0815

Recorded By Dorothy Lewis   Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(X)	360 mg/kg	MB	4-12-83
Atrazine		(X)	645 mg/kg	MB	4-12-83
Cyanozine		(X)	<112 mg/kg	MB	4-12-83
DNBP		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks DNBP results will follow when completed

*Date of Test Initiation

BUREAU OF POLLUTION CON
SAMPLE REQUEST FORM

Lab Bench No. 141

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.
County Code warren
NPDES Permit No.
Discharge No.
Date Requested
Sample Point Identification stream bank
Requested By Chuck Estes
Data To Chuck Estes
Type of Sample: Grab (X) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition sunny and cool
Collected By Chuck Estes
Where Taken on the east side of the impoundment levee at the breech area near the stream

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene, Atrazine, Cyanazine	Cool	2/7/83	3:10
2.	Sludge	DNBP	5ml H2SO4	2/7/83	4:00
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (X) Field truck

V. LABORATORY: Received By DeJornette King
Date 2/8/83
Time 0815
Recorded By Dorothy Lewis
Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	( )		mg/1		
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	( )		mg/1		
Cyanide	(000722)	( )		mg/1		
Toxaphene		(X)	360	mg/kg	MB	4-12-8
Atrazine		(X)	645	mg/kg	MB	4-12-8
Cyanozine		(X)	<112	mg/kg	MB	4-12-8
DNBP		( )				
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks DNBP results will follow when completed

*Date of Test Initiation

LISTING BACKGROUND DOCUMENT

TOXAPHENE PRODUCTION

Wastewater Treatment Sludge from the Production of Toxaphene (T)

Untreated Process Wastewater from the Production of Toxaphene (T)

I. Summary of Basis for Listing

The production of toxaphene, a chlorinated hydrocarbon pesticide, results in the generation of process wastewater containing heavily diluted concentrations of toxaphene, and wastewater treatment sludges that contain approximately one percent of toxaphene by weight.

The Administrator has determined that process wastewater and wastewater treatment sludge from toxaphene production may pose a substantial present or potential hazard to human health or the environment when improperly transported, treated, stored, disposed of or otherwise managed, and therefore should be subject to appropriate management requirements under Subtitle C of RCRA. This conclusion is based on the following considerations:

1) Toxaphene is present in each of these waste streams; in the case of the wastewater treatment sludge, if it is found in very high concentrations. Toxaphene has been reported to cause cancer in laboratory animals and is extremely toxic. Toxaphene has also been recognized by the Agency as exhibiting substantial evidence of being carcinogenic. It is also a potent teratogen and has been shown to be mutagenic.

2) Approximately 7 tons of wastewater treatment sludge containing about 140 lbs. of toxaphene are generated per production day. About 19,000 tons of sludge are already disposed of in a landfill in Georgia. (5)

3) Disposal or treatment of these wastes in improperly designed or operated landfills or unlined lagoons could result in substantial hazard if toxaphene migrates via groundwater or surface water exposure pathways.

4) Toxaphene is highly persistent in the environment and bioaccumulates greatly in environmental receptors.

II. Sources of the Waste and Typical Disposal Practices

A. Profile of the Industry

Toxaphene is produced in this country by two manufacturers: Hercules, Inc. at its Brunswick, Georgia plant, and Vertac Chemical Company at its Vicksburg, Mississippi plant.[1]

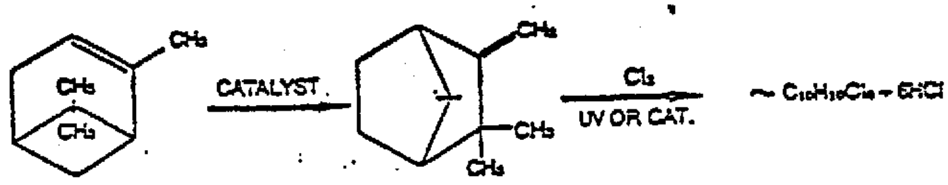
.[2,3]

Toxaphene is a complex mixture of polychlorinated camphenes containing 67 to 69 percent chlorine and has the approximate composition of $C_{10}H_{10}Cl_8$. It has been used exclusively as a non-systemic and persistent contact and ingestion insecticide. Toxaphene is marketed as a 90 percent toxaphene-10 percent solvent solution using mixed or modified xylene as the solvent. This solution is then formulated by various companies into emulsifiable concentrates, either alone or with other insecticides. Little or no toxaphene is currently being used in dust, wettable powder, or granule formulations.

*All underlined data are obtained from proprietary reports and data.

B. Manufacturing Process

Toxaphene is produced in essentially the same manner by both domestic manufacturers. The reaction chemistry is as follows:[19]



α-PINENE CAMPHENE TOXAPHENE

C. Waste Generation and Management*

At the Hercules plant, wastewater is generated from the toxaphene production process (leaks, spills and washdowns), as well as from the scrubbing of vent gases in the HCl absorption and recovery step (see Figure 1).

(2)

(3)

(2) The treated wastewater is directly discharged to a navigable waterway.

In Hercules' toxaphene wastewater treatment system, an average of 7 tons/day of wastewater treatment sludge (settled solids) is generated.[4,5]* The sludge results from the addition of diatomaceous earths

*Variations in wastewater treatment systems or in wastewater sources at the two plants may result in different concentrations of toxaphene in the wastewater treatment sludges.

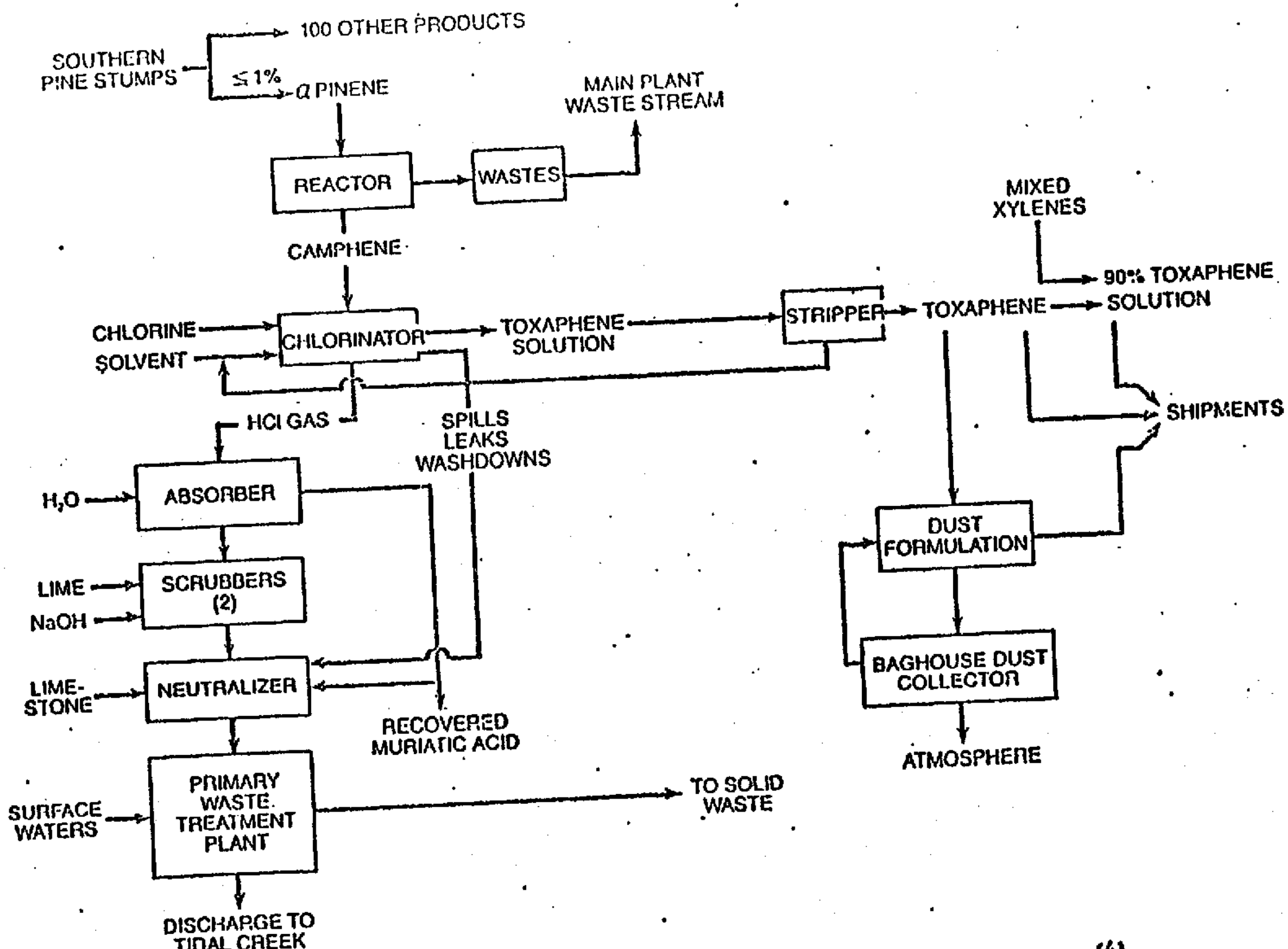


Figure 1. HERCULES' PRODUCTION AND WASTE SCHEMATIC FOR TOXAPHENE [4]

-588-

and lime to the wastewater as sorption agents for the removal of toxaphene from the wastewater.(5) The solids are allowed to settle in holding ponds and may remain there for months at a time.(13) After the basin is filled with solids it is taken off line and the sludge is allowed to dry to approximately 50% solids.(5) Analyses of the sludge performed by Hercules indicate that the sludge contains approximately one percent toxaphene by weight, or 10,000 mg toxaphene/kg of sludge.(5) Some 140 lb/day of toxaphene are generated and will be contained in this waste stream.(4,5)

The ultimate destination of the toxaphene wastewater treatment sludge generated at the Hercules plant is a state-approved landfill.(6) The landfill is known as the "009" landfill and is a privately owned site operating under Georgia permit. It is used exclusively for the disposal of the toxaphene wastewater treatment sludge generated at the Hercules Plant.(6) The "009" landfill used for disposal of the Hercules toxaphene wastewater treatment sludge has a bentonite clay liner, and has 6 monitoring wells which are monitored 4 times per year. To date, no toxaphene has been detected in the wells.(6)

(3).

(5)

(3,5)

(3)

______.* This pond, or lagoon, is unlined.[14] The treated wastewater is discharged to the Mississippi River.

III. Discussion of Basis for Listing

A. Hazards Posed by the Waste

As noted above, in the Hercules toxaphene wastewater treatment system, an average of 7 tons/day of waste sludge are generated.[4,5] The toxaphene content in the waste sludge is approximately at one percent by weight or 10,000 mg/Kg sludge. High concentrations of toxaphene are undoubtedly present in process wastewater to account for such high concentrations in the sludge.

Toxaphene is an exceptionally dangerous waste consitutent. It is extremely toxic, highly bioaccumulative, and has been reported to cause cancer in laboratory animals. It is also a potent teratogen and has been shown to be mutagenic. Toxaphene is regulated as a toxic pollutant under §307(a) of the Clean Water Act. After an adjudiciative

*No data is currently available on the amount of wastewater treatment sludges (settled solids) generated at the Vertac plant. Nor is any data available on the concentrations of toxaphene in these sludges.

proceeding, a discharge concentration limitation of 1.5 ppb has been established for toxaphene discharges into navigable waters, and this discharge limitation was judicially upheld in Hercules, Inc. v. EPA, 598 F. 2d 91 (D.C. Cir 1978). (The administrative and judicial records are incorporated by reference into this listing background document.) The Agency has also established a national interim primary drinking water standard of .005 mg/l for toxaphene. (That administrative record is likewise incorporated by reference.)

The wastes are listed as toxic based on the potential for waste mismanagement and resulting environmental harm. Toxaphene is both mobile and persistent, having frequently been found in clarified and treated municipal drinking water.(18) Existing waste management methods could lead to release of waste toxaphene. Wastewaters are presently treated in holding ponds. Waste treatment sludge, if generated, is now disposed in landfills and unlined lagoons. Disposal in landfills represents a potential hazard if the landfill is improperly designed or operated. This can result in leaching of hazardous compounds and subsequent contamination of ground water. Disposal in unlined lagoons also represents a potential hazard since the wastes may leach directly into the ground, resulting in possible groundwater contamination. Care must be taken to ensure that the lagoons and landfills used for storage or disposal of the toxaphene product wastes are properly designed and operated (e.g., lined with an appropriate thickness of impervious materials or provided with leachate collection/ treatment systems) to prevent contamination of groundwater or surface water.

Prior to disposal in the "009" landfill, the Hercules plant treats these wastes in holding ponds which, if not properly designed and operated, may result in groundwater or surface water contamination. The high water table and the sandy composition of the soil at the location of the Hercules plant in Brunswick, Ga., make careful managment of these wastes particularly important. (13)*

Wastewater treatment sludge could also create a hazard if improperly managed. Although the sludges appear to be managed properly at the present time (suggesting that industry regards these wastes as hazardous), proper management of an otherwise hazardous waste does not make the waste non-hazardous.

One final reason for regulatory concern is noteworthy. Since toxaphene bioaccumulates in environmental receptors by factors of as much as 300,000[7], if only a small amount leaches into the environment, a serious health hazard would be created. In the soil, toxaphene may persist from several months to more than 10 years (soil half-life is 11 years, Appendix B). It has also been shown to persist for up to 9 years in lakes and ponds.[7] Thus, the potential for human exposure is considerable. The potential for substantial hazard is, therefore, very high.

The need for the most careful management of toxaphene-containing substances is thus well-establilshed. In light of the documented health and environmental hazards associated with toxaphene, and the fact that substantial hazard is caused by ingestion of extremely small (ppb) toxaphene concentrations, the Agency believes it is justified in listing this waste.

*It should be noted that Hercules' past effluent management practices have not always been adequate, as Hercules has conceded that its past effluent discharge "'had an adverse effect upon the ecology' of local waters." (18)

B. Health and Ecological Effects

1. Toxaphene

Health Effects - Toxaphene is extremely toxic [oral rat LD_{50} = 40 mg/kg].[8] Death in humans from ingestion of this dosage has also been reported.[9] Toxaphene is also lethal to animals by inhalation and skin absorption at dosages of 1 g/kg or less.[10]

This chemical is teratogenic in mice when administered orally at a relatively small dose (350 mg/kg).[11] Toxaphene is carcinogenic in rats and mice, causing a significant increase in the incidence of thyroid and liver cancers when administered in the diet.[12] A significant increase in liver cancer has been reported in mice at dietary levels of 50 ppm.[15]

Toxaphene and its subfractions have been found mutagenic in the standard bacterial assay (S. typhimuriumm, strain TA100).[16]

Ecological Effects - Toxaphene is extremely toxic to fish, and toxic to lower aquatic organisms, birds, and wild animals. The LD_{50} (96-hour) of toxaphene in static bioassays is 3.5, 5.1 and 14 ng/l for bluegills, fathead minnows, and goldfish, respectively.[7] Toxaphene is also capable of producing deleterious effects in fish at levels as low as 0.39 ng/l, and bioaccumulates by factors of as much as 300,000.[7]

Regulations - Toxaphene has an OSHA standard for air, TWA = 500 mg/m^3 (Skin, SCP-F). Toxaphene is listed as a priority pollutant in accordance with §307(a) of the Clean Water Act of 1977. A 0.005 mg/l EPA National Interim Primary Drinking Water Standard has been established for toxaphene.

Industrial Recognition of Hazard - Toxaphene has been rated by Sax, Dangerous Properties of Industrial Materials[15] to be highly toxic through ingestion, inhalation, and skin absorption.

Additional information and specific references on adverse effects of toxaphene can be found in Appendix A.

IV. References

1. 1977 Directory of Chemical Producers. Stanford Research Institute. Menlo Park, California.

2. Proprietary information submitted by Hercules, Inc. to the U.S. Environmental Protection Agency in 1978 response to "308" letter.

3. Proprietary information submitted by Vicksburg Chemical Company to the U.S. Environmental Protection Agency in 1978 response to "308" letter.

4. Meiners, A. F., C.E. Mumma, T. L. Ferguson, and G. L. Kelso. Westwater Treatment Technology Documentation for Toxaphene Manufacture. Report prepared by the Midwest Research Institute for the U.S. Environmental Protection Agency. EPA-400/9-76-013. February 1976.

5. Telephone communication to: Ms. Jennifer Kaduck, State of Georgia, Land Protection Division, Department of Natural Resources, Atlanta, Georgia (404-656-2833), February 28, 1980 (Edward Monnig, TRW).

6. Telephone communication to: Ms. Jennifer Kaduck, State of Georgia, Land Protection Branch, Environmental Protection Division, Department of Natural REsources, Atlanta, Georgia, 12 February 1980. (S. Quinlivan, TRW).

7. Criteria Document for Toxaphene. U.S. Environmental Protection Agency. EPS-440/9-76-0k14. June 1976.

8. Special Publication of Entomoligcal Society of America. College Park, MD, Vol. 74:1 (1974).

9. Clinical Memorandum on Economic Poisons. U.S. Dept. HEW, PHS. COC, Atlanta, GA. p.1, 1956.

10. Council on Pharmacy and Chemistry. Pharmacologic Properties of Toxaphene, a chlorinated Hydrocarbon insecticide. JAMA 149:1135-1137, July 19, 1952.

11. Chernaff, N. and Carber, B.D. Fetal toxicity of toxaphene in rats and mice. Bull. Environ. Contam. Toxicol. 15:660-664, June, 1976.

12. National Cancer Institute. (1977) Guidelines for Carcinogensis Bioassays in Small Rodents. Tec. Rep. No. 1 Publ. No. 017-042-00118-8. U.S. Govn. Print. Office, Washington, D.C.

IV. <u>References</u> (Continued)

13. Telephone Communications to: Ms. Jennifer Kadinck, et al., State of Georgia, Land Protection Division, Department of Natural Resources, Atlanta, Georgia, 8 April 1980. (Robert Karmen, EPA)

14. Telephone Communication: John King (EPA) to Edward Monmig (TRW), 8 April 1980.

15. Litton Bionetics, Inc. Carcinogenic evaluation in mice. Toxaphene Final Report. LBI Project No. 20602. Kensington, MD. Submitted to Hercules, Inc., Wilmington, Del., Nov. 1978.

16. Hill, R.N. (1977) Mutagenicity Testing of Toxaphene Memo dated Dec. 15, 1977, to Fred Hageman. Off. Spec. Pestic. Rev. U.S. Environmental Protection Agency, Washington, D.C.

17. Sax, N. Irving, 1975. Dangerous Properties of Industrial Materials. Fourth Edition, Van Nostrand Reinhold, New York.

18. <u>Hercules, Inc. v. EPA</u>, 598 F. 2d 91, 99 (D.C. Cir. 1978).

19. Lawless, E.W. Pesticide Study Series -5- "The Pollution Potential in Pesticide Manufacturing," Technical Studies Report; TS-00-72-04. Washington, U.S. GPO, 1972.

October 20, 1986

CERTIFIED MAIL NO. P 543 080 283

Culpepper Testing Labs
205 South Main Street
Hattiesburg, Mississippi 39401

Dear Sirs:

Enclosed is a copy of a sampling plan to be conducted at Vicksburg Chemical during the week of October 27, 1986. The State of Mississippi is currently accepting bids for carrying out the enclosed plan. Written bids must be submitted to John Files, Administrative Coordinator, Mississippi Bureau of Pollution Control, 2380 Highway 80 West, Southport Center, P. O. Box 10385, Jackson, Mississippi, 39204, by 5:00 p.m., Thursday, October 23, 1986. The successful bidder will be notified by 5:00 p.m., Friday, October 24, 1986.

Should you have any questions, please contact our office.

Sincerely,

Sam Mabry, Director
Division of Solid Waste Management

SM:els
Enclosure

LAW OFFICES
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100 NORTH MAIN BUILDING
MEMPHIS, TENNESSEE 38103
901/525-1711

CHARLES W. METCALF 1840-1924
WILLIAM P. METCALF 1872-1940
JOHN W. APPERSON 1896-1985

CHARLES METCALF CRUMP
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JOHN B. MAXWELL, JR
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ROBERT L. DINKELSPIEL
MICHAEL E. HEWGLEY
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901/756-6300

October 20, 1986

Colonel Charles L. Blalock
Executive Director
Mississippi Department of Natural Resources
P. O. Box 20305
Jackson, Mississippi 39209

Re: Mississippi Commission on Natural Resources
Order No. 1046-86

Dear Colonel Blalock:

This letter is submitted on behalf of Cedar Chemical Corporation, Respondent in the referenced Order, in support of its motion to dismiss the complaint referred to in the Order, which was heard at the last Commission Meeting on September 16, 1986. I would be obliged if you would enclose copies of this letter to be delivered to the Commission members and make available the documents enclosed herewith, namely:

Item 1. Post-Hearing Memorandum on behalf of Cedar Chemical Corporation;

Item 2. Copy of my letter dated October 7, 1986 to Sam Mambry, Director of Division of Solid Hazardous Waste Management, Mississippi Department of Natural Resources.

Item 3. Copy of the test results referred to in the third page of my letter to Mr. Mambry, relative to concentrations of toxaphene in the sediment of the surface impoundment, which was the subject of the hearing last month.

Item 4. Additional results of toxaphene analysis, by weight, of the 18 retained pond sediment samples gathered by the respondent in September, 1986 (which were heretofore submitted for analysis of dinoseb, by weight, the results of which were presented at the hearing last month).

As the Commission will recall, it was stipulated by the Department at our hearing last month that the sole basis for regulation of the subject surface impoundment under RCRA related to dinoseb manufacturing operations at Cedar's Vicksburg Facility, including trace levels of dinoseb contamination in soils and sediments at the Plant. Our preparation for the hearing, as well as our preparation of the enclosed Post-Hearing Brief (Item 1) were based on that position.

We have now been advised that the Department does not contest our client's position with respect to dinoseb, but we further understand that the Environmental Protection Agency has urged the Department to expand the scope of the hearing to determine if RCRA Regulation of the surface impoundment can be justified by the presence of some other contaminant or some other previous manufacturing activity at the Plant - specifically, activities related to toxaphene manufacture which ceased in March, 1982. My letter to Mr. Mambry of October 7, 1986, addressed these new issues (See Items 2 and 3 enclosed). Immediately thereafter Cedar commissioned analysis of additional samples (See Item 4), which indicated no toxaphene contamination at the limit of detection reported by the laboratory of .1 parts per million.

It was hoped, that the procedure suggested in my letter to Mr. Mambry, together with the subsequent test results (Item 4), which were delivered to him would afford a basis for concluding these matters by agreement prior to the next Commission meeting. It now appears, however, that the scope of the inquiry is broadening to include matters that we do not view to be relevant to the issue which was put before the Commission last month - namely, whether the surface impoundment should be subjected to regulation (and immediate closure) under RCRA Regulations.

We have attempted to cooperate with the Department in supplying information it has requested, and Cedar will continue to do so in the future. Nevertheless, we submit that Cedar is entitled to a decision on its motion based on the testimony and evidence presented at the hearing on September 16, 1986. We therefore respectfully request that the Commission act on Cedar's Motion to Dismiss, and find, as we believe it must, that the subject surface impoundment is not subject to RCRA Regulation for the reasons outlined in the Post-Hearing Memorandum enclosed herewith.

Sincerely yours,

Allen T. Malone

ATM:jw

Enclosures

cc: Mr. William L. Smith
Mr. George Williamson
Mr. Charles H. Chisohm

BEFORE THE MISSISSIPPI COMMISSION ON NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL

IN THE MATTER OF:

MISSISSIPPI COMMISSION
ON NATURAL RESOURCES,

vs. ORDER NO. 1046-86

CEDAR CHEMICAL CORPORATION
(Successor to Vertac Chemical
Corporation)

POST-HEARING MEMORANDUM

This Memorandum is submitted on behalf of Cedar Chemical Corporation ("Cedar") at the Commission's request following a hearing held before the Commission on September 16, 1986 to consider Cedar's Motion to Dismiss referred to in Paragraph 7 of the Commission's Order No. 1046-86 entered August 26, 1986.

ISSUES: The ultimate issue raised in Cedar's Motion is whether the surface impoundment located at Cedar's "South Plant" in Vicksburg, Mississippi (the "Pond") is a facility used for the treatment, storage or disposal of "hazardous waste," as defined by the Mississippi Hazardous Waste Management Regulations ("RCRA Regulations"), and therefore a "regulated unit" subject to those RCRA Regulations affecting such facilities.

a. That liquid from the Pond is discharged pursuant to a Section 402 Clean Water Act Permit;

b. That the only hazardous waste going into the Pond is a chemical product listed in Section 261.33 (in this case, dinoseb);

c. That the dinoseb entering the Pond was produced in the course of manufacturing operations at the facility.

d. That the dinoseb entering the Pond derives only from losses of this product in the course of manufacturing operations at the facility;

e. That dinoseb losses at the facility are "de minimus" as that term is used in the applicable regulation; and

f. That no dinoseb entering the Pond derived from deliberate discarding or major leaks or spills of hazardous waste, including dinoseb. (See Cedar Exhibit 1)

Based on testimony of Mr. Dietrich, which was not contested by the MDNR, the above findings of fact would lead to a legal conclusion that the de minimus exception under RCRA is applicable, thereby exempting the Pond from RCRA Regulations affecting s hazardous waste facilities.

PROPOSED FINDINGS OF FACT

1. Is the liquid from the Pond discharged pursuant to a Section 402 Clean Water Act Permit?

The Mississippi Department of Natural Resources ("MDNR") contends that the Pond is properly designated a RCRA Facility by virtue of the so-called "mixture rule" at MHWMR 261.3(a)(2)(iv).

Cedar contends that the so-called "de minimis exception" to the mixture rule, codified at MHWMR 261.3(a)(2)(iv)(D), is applicable to the Pond, therefore taking the Pond out of what would otherwise be classified as a RCRA Facility, and permitting the Company to avoid what otherwise would be a mandatory closure of the Pond under RCRA.

The MDNR also suggested at the hearing that leaks of dinitrobutylphenol (dinoseb or DNBP) waste stored at the South Plant were not properly within the designation of manufacturing operations and could have entered the Pond, thereby making the Pond ineligible for the de minimis exception to the mixture rule.

Cedar contends that the only losses of dinoseb at the South Plant which could conceivably have been discharged to the Pond (either in the form of rainwater runoff or through the Plant's sewer system) have been losses which are squarely within the "de minimus exception" covered by MHWMR 261.3(a)(2)(iv)(D).

According to testimony of Gary N. Dietrich, who formerly served as Director of the Office of Solid Waste of the Environmental Protection Agency and who supervised the drafting of the RCRA "de minimus exception," a determination of whether the Pond is exempt from RCRA regulation under the de minimus exception requires the following findings:

Based on evidence presented at the hearing, which was undisputed by the MDNR, Cedar and its predecessors have operated the Pond as a point source for discharges pursuant to a Section 402 Clean Water Act Permit since prior to the effective date of RCRA.

2. Is the only hazardous waste entering the Pond a chemical product listed under MHWMR 261.33, and is this product in fact dinoseb?

Based on evidence presented at the hearing, which was undisputed by the MDNR, the commercial product, dinoseb, when discarded, is a hazardous waste listed under MHWMR 261.33, and is the only such hazardous waste shown to enter the Pond.

3. Is the dinoseb entering the Pond produced in the course of manufacturing operations at Cedar's facility?

It is undisputed that Cedar and its predecessors have been engaged in the manufacture of dinoseb at the South Plant at Cedar's Vicksburg facility since 1973, and the only dinoseb that could have conceivably entered the Pond since 1973 was dinoseb manufactured at the facility.

4. Does dinoseb which enters the Pond derive only from losses of dinoseb from manufacturing operations at the facility?

The MDNR suggested several possibilities that, in its view, could remove the Pond from the de minimis exception, each on the theory that some quantities of dinoseb introduced into the Pond may not have derived from "manufacturing operations" at the

South Plant. First, counsel for the MDNR implied that because dinoseb process wastewater once entered the Pond, MDNR may take the position that the Pond cannot be exempted from RCRA regulation under the de minimis exception. Second, the MDNR theorized that the contents of some drums stored in the returned product and hazardous waste storage areas may have contained spent carbon which could have leaked from the drums and found its way into the Pond. Finally, it was argued that carbon particles with dinoseb attached might constitute hazardous waste which could serve to take the Pond out of the exception when the particles are backwashed into the Pond in the carbon filter cleaning process. The regulations and evidence developed at the hearing do not support the MDNR's theories.

Mr. Estes of MDNR agreed with Mr. Dietrich that dinoseb process wastewater is not a listed hazardous waste. Therefore, the fact that some of the wastewater may have entered the Pond in the past is irrelevant to the issue presently before the Commission.

Likewise, the evidence at the hearing failed to demonstrate that the contents of the subject drums was hazardous waste. Moreover, even if the drums had contained spent carbon which had absorbed dinoseb, as MDNR surmised, Mr. Dietrich testified that such is not a listed hazardous waste. Further, there was no evidence whatsoever that any of the contents of the drums was ever introduced into the Pond. Indeed, Mr. Keen testified that water run-off from the areas where the drums may have been stored cannot find its way into the Pond because sewer pipes in the returned product and hazardous waste storage areas are segregated from the main sewer system which empties into the Pond.

Similarly, Mr. Dietrich testified that discharge of backwash from filter-cleaning operations merely constitutes a recycling of wastes removed from the Pond in the first place, and that such backwash does not constitute hazardous waste under RCRA. It is also submitted that such discharges are consistent with the "normal materials handling operations" described in the de minimis exception (e.g., "discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty containers . . .") and thus by definition fall within the term "manufacturing operations."

In summary, apart from the debatable question whether the waste handling procedures described above are part of the Plant's "manufacturing operations," the record does not reflect that any "hazardous waste" could have been lost in the course of such procedures and entered the Pond.

5. Are prior and current losses of dinoseb from manufacturing operations de minimis?

The undisputed evidence adduced at the hearing clearly demonstrates that the dinoseb which has entered the Pond derived only from de minimis losses of the product in the manufacturing operations at the facility.

MHWMR 261.3(a)(2)(iv)(D) provides examples of types of losses from manufacturing operations which are considered de minimis. They include:

> those from normal material handling operations (e.g. spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers; leaks from well-maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty containers or from containers that are rendered empty by that rinsing; . . . .

Mr. Keen, who has worked in various supervisory capacities at the facility since 1972 and has been Product Manager since 1982, testified concerning the losses which occur in the dinoseb manufacturing operations at the facility. The types of losses described by Mr. Keen are in most cases identical to the ones given as examples in the regulation and the others are closely analagous. Mr. Dietrich testified that, in his opinion, the types of losses which occur at the facility are exactly the type he and the EPA had in mind when the de minimis exception was promulgated in 1981.

Mr. Dietrich sponsored exhibits (Cedar Exhibit Nos. 5 and 6) and testimony which reflect his calculations of the average daily losses of dinoseb from manufacturing operations at Cedar's South Plant. On Exhibit 6 he showed that dinoseb losses would go to three places: (1) Onto the surface of soils of the South Plant where it would accumulate over time; (2) to the Pond, as dissolved or suspended material in the drain and rainwater run-off from the South Plant and from the Pond to the carbon filter system where it would be removed prior to discharge of Pond water to the Mississippi River, and (3) to the Pond as settleable material in rainwater run-off from the South Plant, where it would be accumulated in the sediments of the Pond.

By extrapolating from the analyses of soil, water and sediment samples taken from these three areas to determine probable daily losses of dinoseb from manufacturing operations, and comparing those results to average daily production of dinoseb during the thirteen years of operation of the Plant, Mr. Dietrich concluded that, in his considered opinion, such losses, which he calculated to be far less than one-tenth of one percent, are clearly de minimis as contemplated by him and the EPA when the de minimis exception was promulgated.

The MDNR neither challenged Mr. Dietrich's calculations of daily losses of dinoseb, nor offered any of its own. Its evidence consisted solely of concentration readings from samples it took from two Pond water samples, two Pond sediment samples, one surface soil sample, and three sump water samples. These readings were consistent with the samples analyzed by the Company, according to Mr. Dietrich's testimony.

Finally, Mr. Keen testified that losses of dinoseb going into the Pond after November, 1985 will be even less than in the past. In November, 1985, Cedar completed modifications to its sewer system to prevent losses of dinoseb from manufacturing operations from flowing to the Pond. Losses are now vacuumed into tank trucks and are either recycled or disposed of off-site.

6. Does any dinoseb which is entering the Pond derive from deliberate discarding or major leaks or spills of this product?

The undisputed evidence is that dinoseb entering the Pond does not and never has derived from deliberate discarding or from any major leaks or spills.

Mr. Keen and Mr. Ahlers both testified that Cedar and its predeceasors have never discarded any of the commercial products manufactured at the facility into the Pond. Additionally, neither was aware of any major leaks or spills of dinoseb, much less any which have gotten into the Pond. Indeed, Mr. Keen reviewed the supervisors' logs, hazardous waste inspection reports, and the excessive spill or emissions reports in which the occurrence of major leaks and spills would be recorded and found no notations of any having occurred since the effective date of RCRA, November 19, 1980.

7. Are there any other factors which would support a conclusion that the Pond should be regulated as a hazardous waste management facility under RCRA?

There is no evidence before the Commission that the Pond poses a substantial threat to human health or the environment. Mr. Dietrich testified exactly to the contrary. Moreover, as Mr. Dietrich, Mr. Ahlers and Mr. Keen all pointed out, the Pond serves a useful environmental purpose as a "safety net" in the event of a catastrophic event at the facility. The Industrial Waste Section of the Bureau of Pollution Control is also on record as late as post-August, 1983 as advocating that the Pond be left open to collect the large amount of rainwater run-off from the plant, and to serve as a spill containment area in the event of an unexpected catastrophic upset at the South Plant (see Cedar Exhibit No. ____).

If it were determined that the Pond is properly designated a hazardous waste management facility under RCRA, RCRA Regulations (and the recent Commission Order) would require that the Pond be closed. According to testimony of Mr. Keen and Mr. Ahlers, in order to close the Pond, Cedar would have to construct alternate faclities to receive the large volume of rainwater run-off from the facility, as well as the periodic discharge of non-hazardous waste from its North Plant, which the Pond currently receives. Depending on the time schedule involved and other factors, such construction could result in a temporary or even permanent plant closing with resulting reduction in work force. At a minimum, the Pond closing and construction of alternate facilities could involve costs of up to $6,000,000.

Mr. Estes of the MDNR expressed his opinion that the Pond is of "regulatory concern" due to DNBP in the sediment. Cedar would show that, in the event it is determined that the de minimis exception applies, the Pond will still be subject to regulation under the imminent hazardous provisions of §7008(h) of RCRA, not to mention other environmental statutes such as CERCLA. In addition, discharge from the Pond will continue to be regulated under §402 of the Clean Waste Act. Thus, Mr. Estes' regulatory concern clearly can be met without imposing RCRA Regulations mandating elimination of the Pond.

CONCLUSION

In light of the findings of fact which are inescapable from the evidence presented at the hearing, it must be concluded as a matter of law that the Pond is not subject to RCRA Regulations which regulate facilities used for treatment, storage or disposal of hazardous waste. Accordingly, Cedar submits that its Motion to Dismiss the Complaint referred to in the subject Order must be granted.

Dated: October 20th, 1986.

Respectfully submitted,

CEDAR CHEMICAL CORPORATION
(Successor to Vertac Chemical Corporation)

By: William L. Smith
William L. Smith
R. David Kaufman

BRUNINI, GRANTHAM, GROWER & HEWES
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Telephone: (601) 948-3101

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KIRBY CENTRE
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MEMPHIS, TENNESSEE 38119
901/756-6300

October 7, 1986

HAND-DELIVERED

Mr. Sam Mambry
Director, Division of Solid
Hazardous Waste Management
Mississippi Department of
Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

RECEIVED
OCT 10 1986
DEPT. OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

Re: Cedar Chemical Corporation
Commission Order No. 1046-86

Dear Mr. Mambry:

It is my understanding from recent conversations with you and Cedar's local counsel, Bill Smith, that both your agency as well as EPA Region IV are now in agreement that, insofar as dinoseb contamination of soils and sediments at the Plant is concerned, RCRA Regulations are not applicable to the surface impoundment at Cedar's Vicksburg Plant, by virtue of the de minimis exception to the so-called "mixture rule" (MHWMR 261.3(a)(2)(iv)).

I also understand that your agency and the EPA would now like to expand the scope of the hearing to determine if there is some other basis for asserting RCRA jurisdiction - specifically, to determine if the "mixture rule" would be applicable by virtue of production of some product at the Plant other than dinoseb, which may have generated a hazardous waste. As you know, it was stipulated at the hearing that the "mixture rule" was deemed applicable solely as a result of the presence of dinoseb in soils and pond sediment at the Plant. Since this was the issue that we asked our consultants and witnesses at the hearing to address, my client is naturally concerned about agreeing to expand the scope of the hearing after it has been concluded by supplementing the record with responses to questionnaires and additional test data. This letter, however, is intended to afford a basis on which the record might be expanded to cover the additional issues that are now being raised in a manner that my client can accept.

First, to be sure that there is no misunderstanding about the expanded scope of the hearing which you are proposing, it is my understanding that the new inquiry is focusing on past production of toxaphene at the Plant inasmuch as untreated process wastewater from toxaphene production, as well as wastewater treatment sludge resulting therefrom, have been classified as hazardous wastes under RCRA (K098 and K041 respectively) (It can easily be documented that the other three products which have been mentioned as candidates for review - chlordane, disulfaton and phorate - have never been produced at the Plant.)

I trust we can agree, based on EPA's Listing Background Document for toxaphene production, that K098 and K041 are listed as hazardous waste due to toxaphene concentrations of approximately 1% by weight in the wastewater treatment sludge at Hercules' Brunswick, Georgia Plant, and what EPA assumed to be even higher concentrations of toxaphene in the untreated processed wastewater which resulted in the sludges.

I am satisfied from discussions with Plant personnel that no such wastes were ever generated at the Vicksburg Plant. A review of the background document and other literature will demonstrate that Hercules' production method involved the filtering of toxaphene solution from the chlorinator, which system produced the seven tons of sludge which were generated daily by Hercules, according to the background document. No such procedure was used in connection with the Vicksburg process, and no such contaminated process wastewater streams or sludges were generated.

While the Vicksburg Plant did generate relatively small quantities of scrubber water from its air emission scrubber in connection with the HCl recovery system, this particular waste stream would not have contained any detectable toxaphene contamination. I trust we can agree that such a waste stream, by itself, would not be within the K098 classification contemplated by RCRA Regulations. I am certain that we can demonstrate to your satisfaction that no other wastewater was generated, either directly or indirectly, as a result of toxaphene production at the Vicksburg Plant.

The only remaining possible inquiry, it seems to me, would be whether any trace levels of toxaphene in the Pond sediment at the Plant which might have derived from past de minimis losses would exceed .5 ppm using the EP toxicity method, thereby causing the pond sediment to be classified as D015 waste under 40 CFR 261.24. This question, however, has already been answered by past test data - both that of the State and of Cedar. In 1983, the State analyzed two grab samples of sediment from the east side of the impoundment. One indicated 360 ppm toxaphene and the other indicated 280 ppm. The sample that showed 280 ppm, when subjected to the EP toxicity method, showed less than 20 parts per billion toxaphene. More recently, our client took the two Pond sediment samples which the State split with the Company in connection with the August, 1986 sampling and submitted them to the Environmental Protection Systems Laboratory in Jackson, Mississippi for EP toxicity anaylsis. Despite the fact that these samples might be expected to contain high levels of toxaphene relative to other portions of the Pond, in both cases no toxaphene was detected at the Lab's limit of detection of less than ten parts per billion. Copies of the analytical results referred to are enclosed herewith.

Based on the foregoing, we would propose that Cedar respond to a questionnaire relative to past production of toxaphene and other products at the Plant in order to document that no K098 or K041 wastes were ever generated at the Plant, and that the other products whose wastewaters have been classified as hazardous under RCRA were never produced at the Plant. We would further agree that the administrative record could be supplemented by inserting these responses and further, that the record could include the analytical data on toxaphene described above. We cannot see any need for further supplements to the record and would propose that, with these supplements, the Commission should have no difficulty in ruling on Cedar's Motion to Dismiss.

As soon as you have had an opportunity to review this letter, I would like to discuss it with you and Bill Smith by conference call so we can get this matter concluded without further delay.

Sincerely yours,

Allen T. Malone

ATM:jw
cc: Mr. William L. Smith

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P O Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone (601) 922-8242
(800) 523-0659

7215 Pine Forest Road • Pensacola FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.2929 2/2

CLIENT: Vicksburg Chemical
LOCATION: Vicksburg, Mississippi
DATE: 09/26/86
INVOICE NO.: 010870/ncr

COLLECTED BY: Client (7954)
DATE COLLECTED: 09/03/86
DATE RECEIVED: 09/08/86
DATE ANALYZED: 09/24/86

LABORATORY SAMPLE IDENTIFICATION

86094958 - Pond Inlet Sludge
86094959 - Pond Cross-Over Sludge

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	4958	4959			STANDARD OR SPIKE VALUE	RECOVERY	RELATIVE DEVIATION
ethoxychlor, EP Leachable, mg/l	<0.01	<0.01					
oxaphene, EP Leachable, mg/l	<0.01	<0.01					
2,4 - D, EP Leachable, mg/l	<0.01	<0.01					
2,4,5 - TP Silvex, EP Leachable, mg/l	<0.01	<0.01					
"EP TOXICITY" Extraction	Yes	Yes					

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, July, 1982, Test Methods for Evaluating Solid Waste (SW-846).

CERTIFICATION

Donalea Dinsmore-King

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone (601) 922-8242
(800) 523-0659

7215 Pine Forest Road • Pensacola, FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024 1/5

CLIENT:	Vicksburg Chemical Corporation	COLLECTED BY:	Client (7954)
LOCATION:	Vicksburg, MS	DATE COLLECTED:	10/03/86
DATE:	10/07/86	DATE RECEIVED:	10/03/86
INVOICE NO.:	011001/lm	DATE ANALYZED:	10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105548 - Soil Sample A
86105549 - Soil Sample B
86105550 - Soil Sample C
86105551 - Soil Sample D

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5548	5549	5550	5551	STANDARD OR SPIKE VALUE	RECOVERY	RELATIVE DEVIATION
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
MANAGER, QUALITY ASSURANCE

Arthur Caniel
MANAGER, ANALYTICAL DEPARTMENT

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 20382 • 160 Ustor Drive • Jackson, MS 39209
Telephone (601) 922-8242
(800) 523-0659

7215 Pine Forest Road • Pensacola, FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024

CLIENT: Vicksburg Chemical Corporation
LOCATION: Vicksburg, MS
DATE: 10/07/86
INVOICE NO.: 011001/lm

COLLECTED BY: Client (7954)
DATE COLLECTED: 10/03/86
DATE RECEIVED: 10/03/86
DATE ANALYZED: 10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105552 - Soil Sample E
86105553 - Soil Sample F
86105554 - Soil Sample G
86105555 - Soil Sample H

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5552	5553	5554	5555	STANDARD OR SPIKE VALUE	[illegible]	[illegible]
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
MANAGER, QUALITY ASSURANCE

[signature]
MANAGER, ANALYTICAL DEPARTMENT

ENVIRONMENTAL PROTECTION SYSTEMS, INC.
P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone (601) 922-8242
(800) 523-0659
7215 Pine Forest Road • Pensacola, FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024 3/5

CLIENT:	Vicksburg Chemical Corporation	COLLECTED BY:	Client (7954)
LOCATION:	Vicksburg, MS	DATE COLLECTED:	10/03/86
DATE:	10/07/86	DATE RECEIVED:	10/03/86
INVOICE NO.:	011001/lm	DATE ANALYZED:	10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105556 - Soil Sample I
86105557 - Soil Sample J
86105558 - Soil Sample K
86105559 - Soil Sample L

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5556	5557	5558	5559	STANDARD OR SPIKE VALUE	[illegible]	[illegible]
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
MANAGER QUALITY ASSURANCE

Arthur Carnie
MANAGER ANALYTICAL DEPARTMENT

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
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(800) 523-0659

7215 Pine Forest Road • Pensacola, FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024 4/5

CLIENT: Vicksburg Chemical Corporation
LOCATION: Vicksburg, MS
DATE: 10/07/86
INVOICE NO.: 011001/lm

COLLECTED BY: Client (7954)
DATE COLLECTED: 10/03/86
DATE RECEIVED: 10/03/86
DATE ANALYZED: 10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105560 - Soil Sample M
86105561 - Soil Sample N
86105562 - Soil Sample O
86105563 - Soil Sample P

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5560	5561	5562	5563	STANDARD OR SPIKE VALUE	[illegible]	[illegible]
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
MANAGER, QUALITY ASSURANCE

MANAGER, ANALYTICAL DEPARTMENT

ENVIRONM[redacted]AL PROTECTION S[redacted]TEMS, INC.

P O Box 20382 • 160 Upton Drive • Jackson MS 39209
Telephone (601) 922-8242
(800) 523-0659

7215 Pine Forest Road • Pensacola, FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024 5/5

CLIENT: Vicksburg Chemical Corporation
LOCATION: Vicksburg, MS
DATE: 10/07/86
INVOICE NO.: 011001/lm

COLLECTED BY: Client (7954)
DATE COLLECTED: 10/03/86
DATE RECEIVED: 10/03/86
DATE ANALYZED: 10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105564 - Soil Sample Q
86105565 - Soil Sample R

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5564	5565			STANDARD OR SPIKE VALUE	RECOVERY	[illegible]
Toxaphene, mg/kg	<0.1	<0.1			0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
MANAGER QUALITY ASSURANCE

MANAGER ANALYTICAL DEPARTMENT

FILE COPY

M E M O R A N D U M

TO: File

FROM: Jack McCord

SUBJECT: September 3, 1986 Sampling Trip to Vicksburg Chemical (Formerly Vertac)

DATE: September 22, 1986

On September 3, 1986, Melanie Rish, Michael Bradshaw, and I went to Vicksburg Chemical on a sampling inspection. The purpose of the trip was to establish the possibility of spills of dinaseb or returned product draining into the hazardous waste surface impoundment.

Sampling locations included the influent to the impoundment, the water and sludge in the impoundment, soils that could be washed through sewers into the impoundment, sumps that drain into the impoundment, and the hazardous waste and returned product drum storage areas.

Accompanying us on the sampling inspection was John Hill of Vicksburg Chemical, with whom we split samples.

Attached is a map showing sampling locations, a summary of parameters sampled for at those locations, and the sampling results.

JBM:vgr

Sampling Plan
Vicksburg Chemical Impoundment
MSD990714081
Vicksburg, Mississippi

Parameter: Toxaphene
Arsenic
Dinoseb
Acid Extractables
Base Neutral Compounds

Total Extractions will be run for all parameters. If any samples contain over 0.5 mg/l of toxaphene, then both the Extraction Procedures Toxicity and the Toxicity Characteristic Leaching Procedure will be run on the sample with the highest level of toxaphene.

Safety: Due to the nature of the material in the impoundment and the probability that the sampling will require the use of a boat, a separate site safety plan will be prepared by the contractor.

Equipment: Samples may be collected from a boat using shelby tubes, split spoons, push tubes, or equivalent methods.

Coring equipment used to collect samples should be such that disturbance of the soil column is minimized.

Sample containers and ice chests will be provided by the MBPC.

Sample Types: Grab sediment samples.

Split Samples: Splits of all samples will be offered to Vicksburg Chemical Company.

Sampling Points: A series of 26 discrete sample point locations have been selected on a 50 ft. grid for the impoundment with the exception of sample points 1 and 1A which will be taken near the mouth of the inlet pipe [see illustration #1].

Sample Compositing: The samples from the 26 discrete sampling points will be composited per the following scheme:

*6 ft. - 4 ft. core depth

	Sample Number
Composite discretes 1 & 1A	VC-A
Composite discretes 2 & 5	VC-B
Composite discretes 3 & 4	VC-C
Composite discretes 6, 7, & 8	VC-D

*4 ft. - 2 ft. core depth

Composite discretes 1 & 1A	VC-E
Composite discretes 2 & 5	VC-F
Composite discretes 3 & 4	VC-G
Composite discretes 6, 7, & 8	VC-H

*2 ft. - 0 ft. core depth

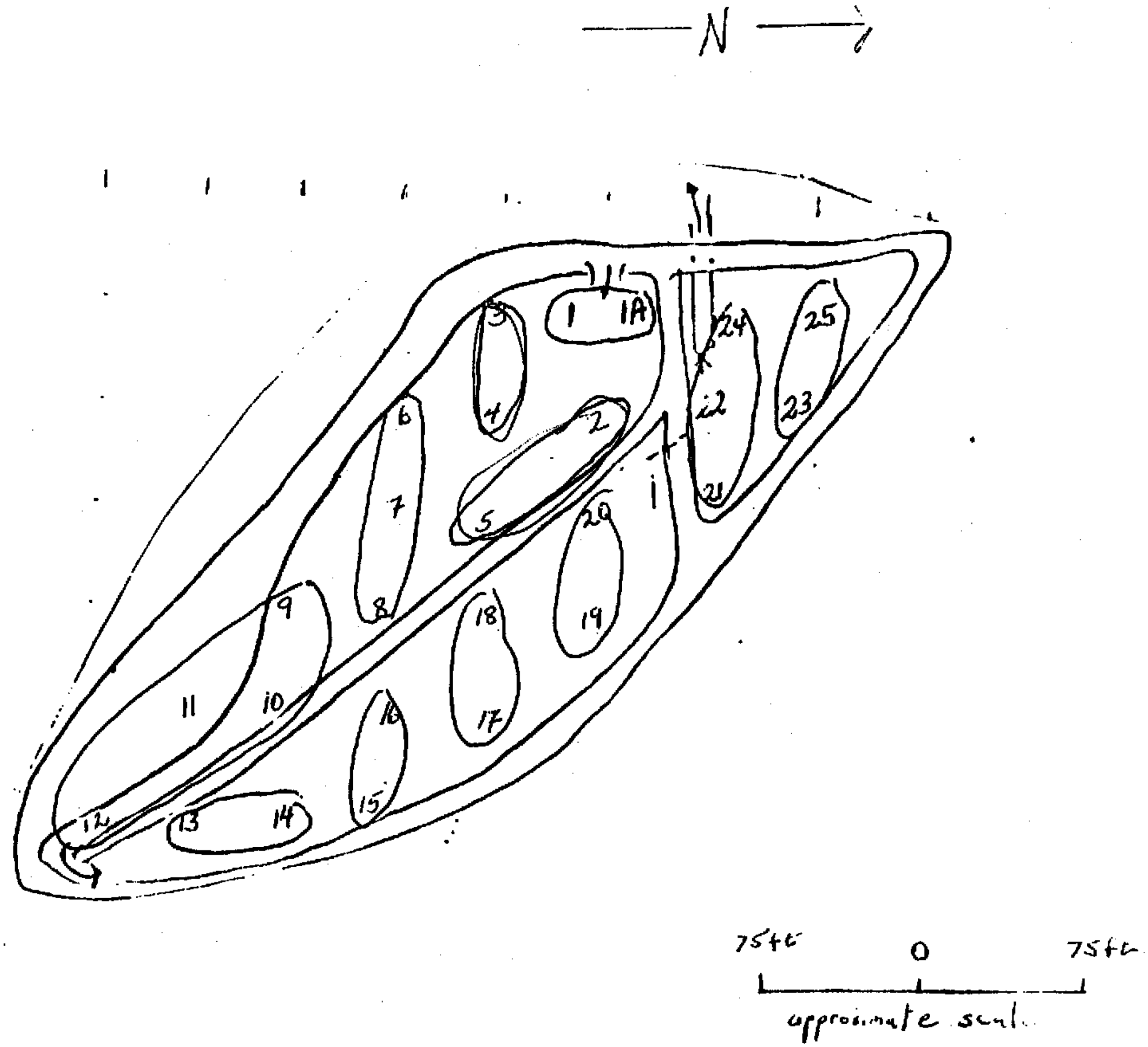
	Sample Number
Composite discretes 1 & 1A	VC-I
Composite discretes 2 & 5	VC-J
Composite discretes 3 & 4	VC-K
Composite discretes 6, 7, & 8	VC-L
Composite discretes 9, 10, 11 & 12	VC-M
Composite discretes 13 & 14	VC-N
Composite discretes 15 & 16	VC-O
Composite discretes 17 & 18	VC-P
Composite discretes 19 & 20	VC-Q
Composite discretes 21, 22, & 24	VC-R
Composite discretes 23 & 25	VC-S

Sample Collection: Samples 1, 1A, and 2 through 8 shall be collected in 2 ft. portions to a total depth of 6 ft. Sample points 9-25 should be collected to a maximum depth of 2 ft. Illustration #2 provides information as to the expected sediment depths. All samples will be collected according to EPA QA/QC standards. Samples shall be composited in glass or stainless steel bowls that have been cleaned with acetone and hexane and covered with aluminum foil prior to use. The samples will be thoroughly mixed using stainless steel spoons prior to placing in the sample container.

All sampling activities will be conducted under the supervision of a representative of MBPC.

JM:els

Illustration #1

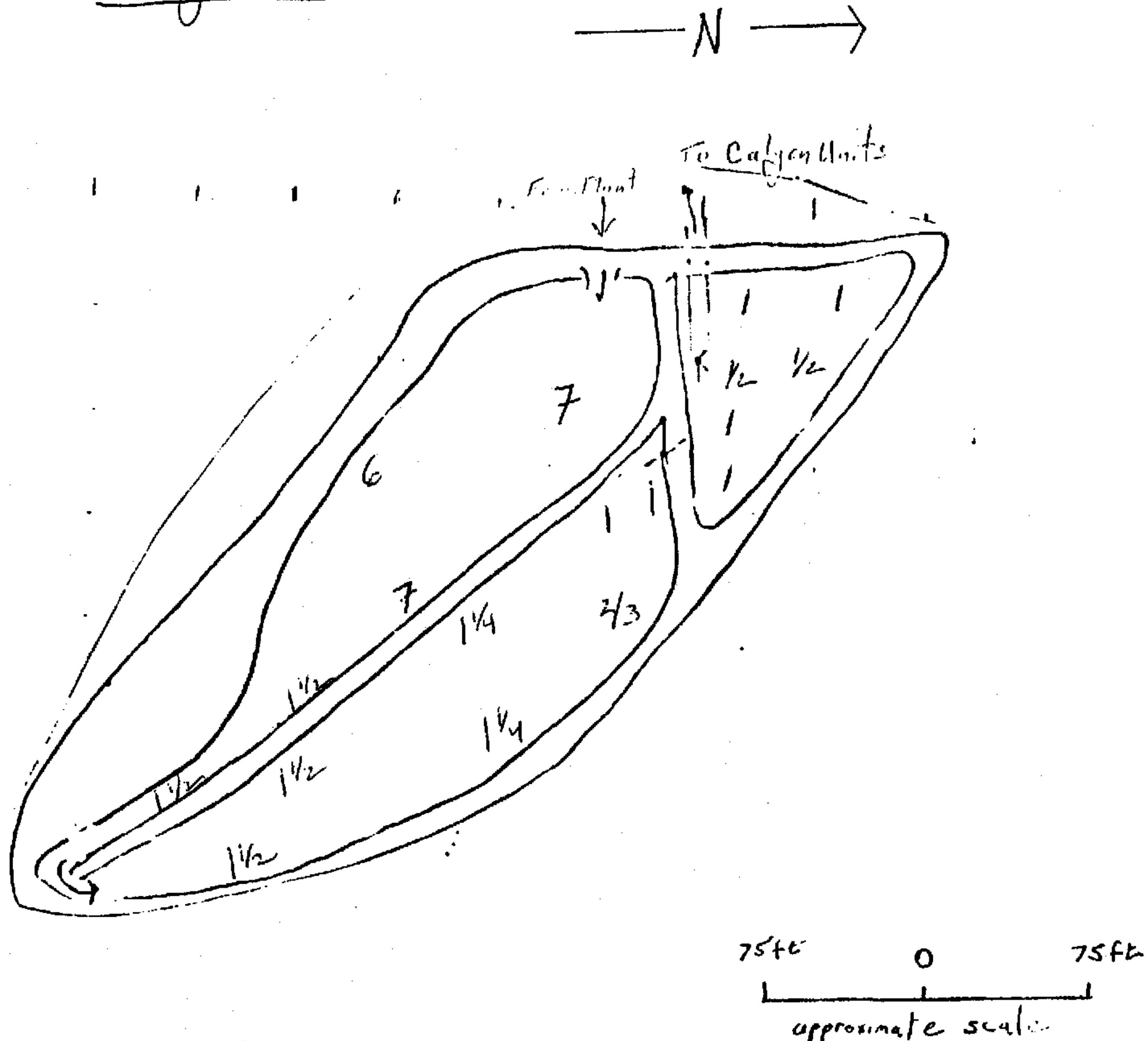


50 ft grid

Surface Impoundment

Illustration #2

Sludge Depths (in feet)



50 ft grid

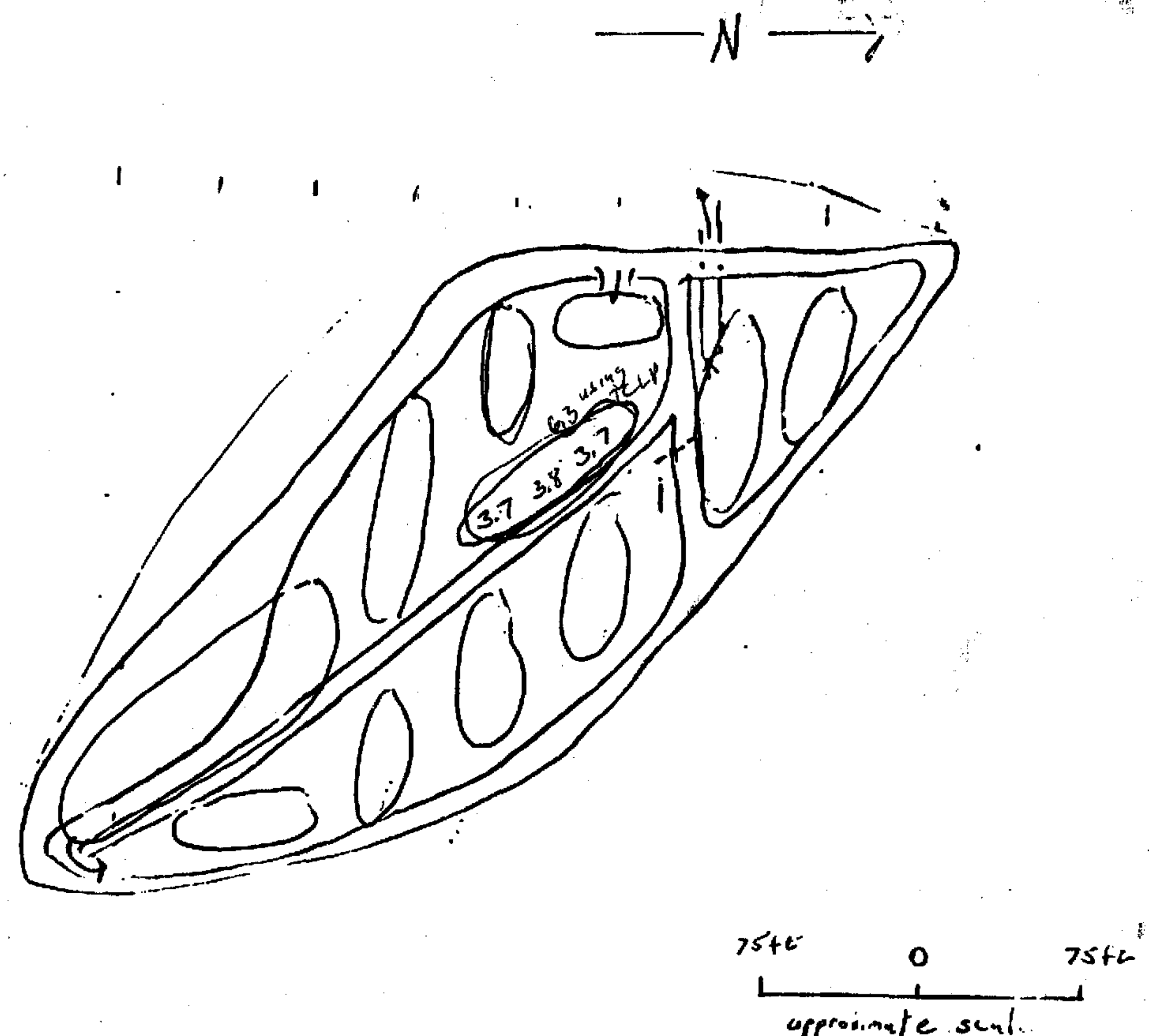
Surface Impoundment - Vicksburg Chemical

Lab #	Marked	As PPM	Toxaphe[ne] [PPM]	PCB (PPM) (Aroclor 1254)	DNBP µg/Kg	Atrazine µg/Kg	Bladex µg/Kg	
726113	A	43.8	536	ND at 10 PPM	64,000	21,000,00	1,700,000	1,2 dichlorobenzene 20,00[illegible] Methyl parathion 400,0[illegible]
726114	B	7.1	223	58.4	40,000	3,000,000		
	EP EXT B	0.067	ND @ 0.004	ND @ 0.004	3,700	37,000	5,000	
726115	C	14.5	680	ND @ 10	770,000	9,000,000	3,000,000	
726116	D	9.0	322	37.1	170,000	8,000,000	900,000	
726117	E	143	2,320	ND @ 10	5,910,000	3,900,000	8,000,000	Methyl Parathion 4[illegible]
726118	F	66.9	541	ND @ 10	330,000	78,000,000		
	EP EXT F.	0.86	ND @ 0.1	ND @ 0.004	3,800	51,000	3,000	2,4 dinitrophenol - tr
	TCLP F	1.36	ND @ 0.04	ND @ 0.004	6,300	45,000	900	4-nitrophenol - tr
726119	G	40.1	381	ND @ 10	1,100,000	30,000,000		4 nitrophenol - 50,00[illegible]
726120	H	7.9	6.33	ND @ 10	25,000	15,000,000		4-nitrophenol - tr 2-4 dinitrophenol - tr
726121	I	114	17.5	ND @ 10	1,600,000	8,000,000		4-nitrophenol - 70,0[illegible]
726122	J	216	18.1	ND @ 10	160,000	2,000,000		
	EP EXT J	1.6	ND @ 0.04	ND @ 0.004	3,700	49,000		
726123	K	108	1.82	ND @ 10	620,000	360,000		4-nitrophenol - 30,0[illegible]
726124	L	93.5	1.18	ND @ 10	15,000	22,000		4-nitrophenol - tr
726125	M	29.2	ND @ 1	ND @ 10	11,000	13,000		
726126	N	41.0	ND @ 1	ND @ 10	10,000	230,000		
726127	O	57.8	ND @ 1	ND @ 10	4,000	1,500,000	142,000	4-nitrophenol - tr
726128	P	16.9	22.0	51.9	6,000	1,000,000		pentachlorophenol 17
726129	Q	46.2	29.1	4.65	92,000	300,000		
726130	R	50.3	4.60	9.16	60,000	5,000		
726131	S	96.5	42.9	33.8				

ND - none detected at stated level

As, Toxaphene, and Pcb amounts are PPM (µg/g), other values are PPB (µg/Kg or µg/l)
Bladex identification by computer spectral match, no standard shot to confirm retention time
Bladex concentration estimated relative to internal std.

RECEIVED
NOV 17 1986
DEPT. OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

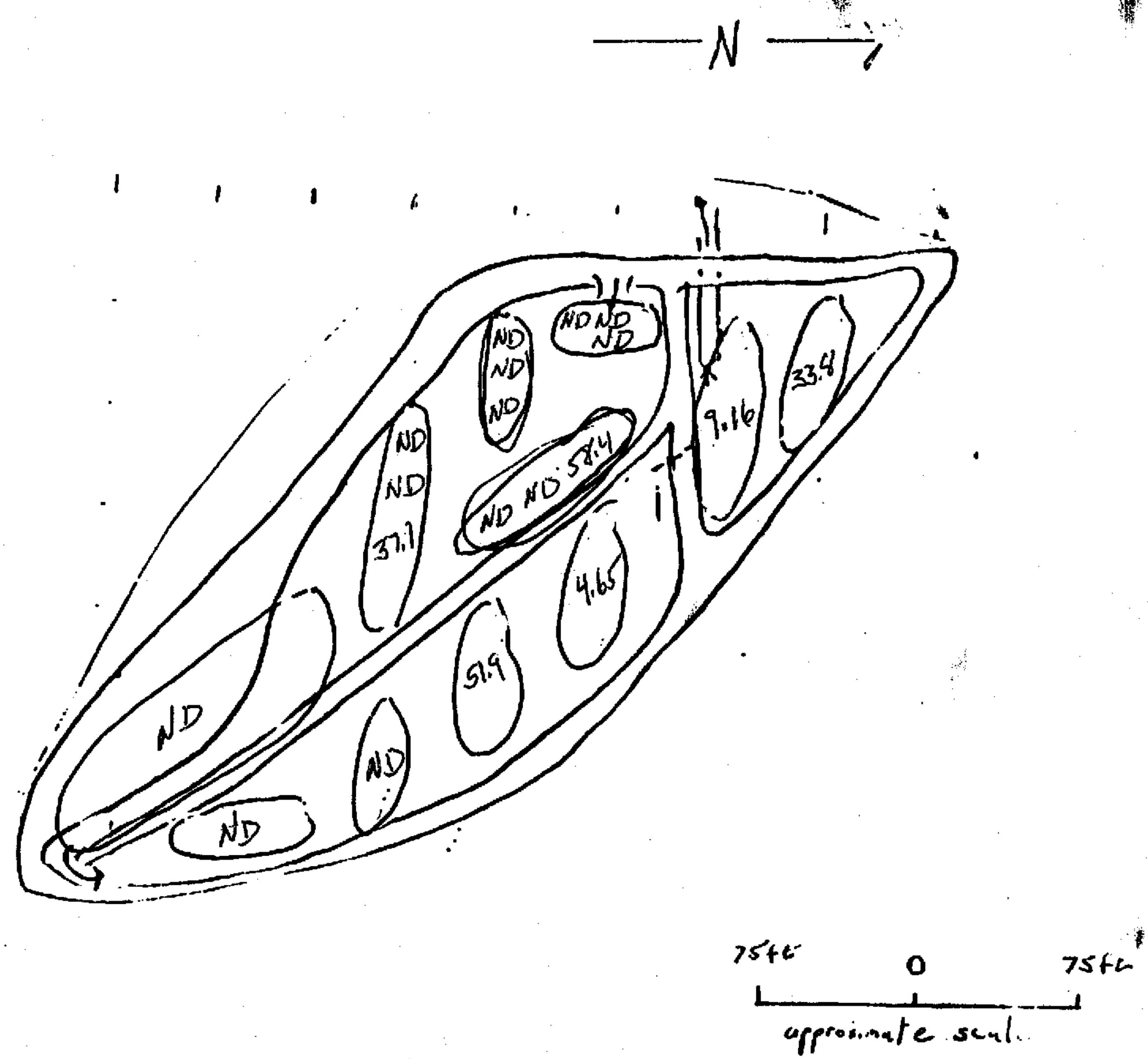


Black 0-2 ft
Blue 2-4 ft
Red 4-6 ft

50 ft grid

DNBP concentrations - EP Tox (ppm)

Surface Impoundment - Vicksbu

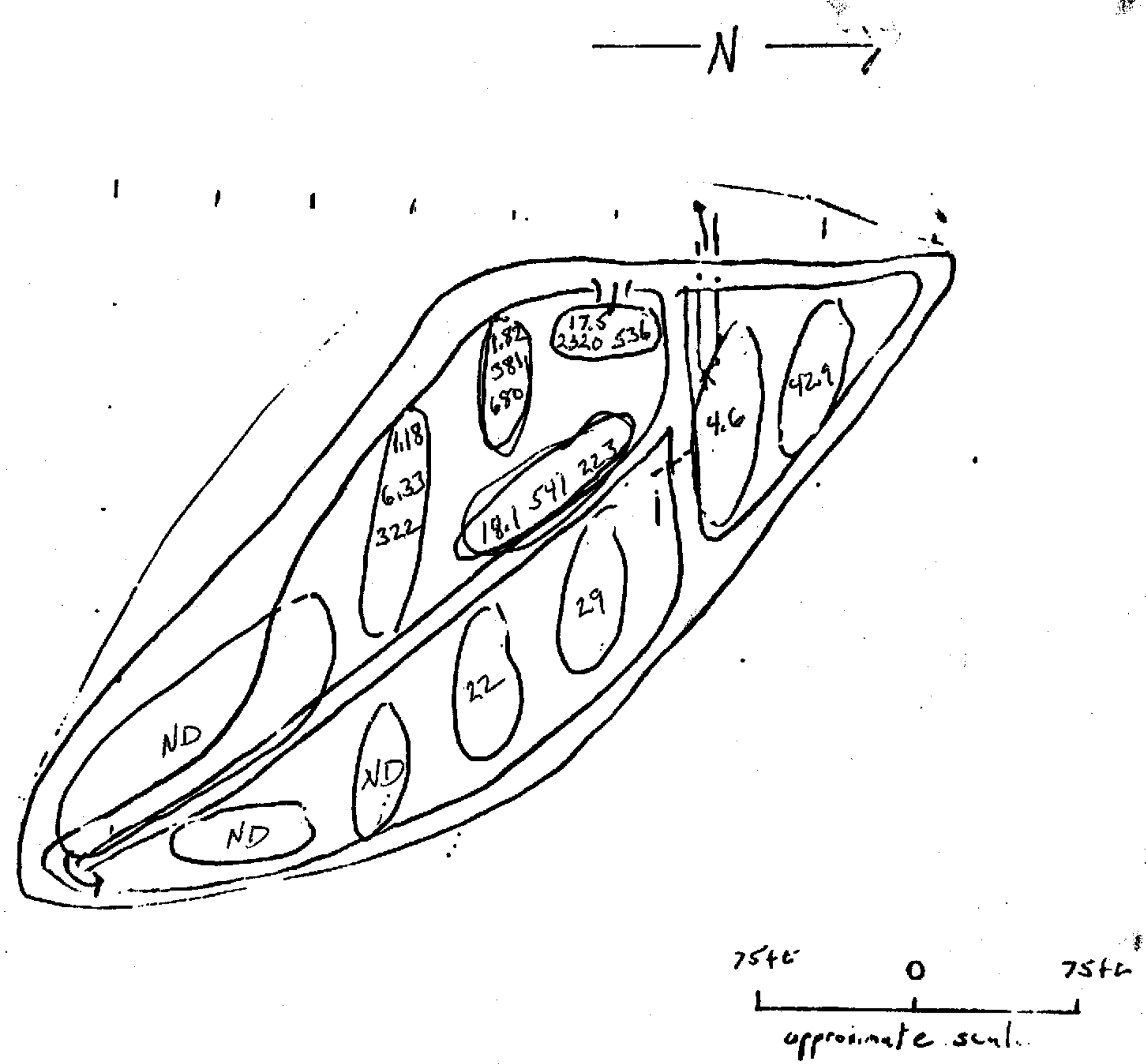


Black - 0-2 ft
Blue - 2-4 ft
Red - 4-6 ft

50 ft grid

PCB concentrations (ppm)

Surface Impoundment - Vicksbu



Black 0-2 ft
Blue 2-4 ft
Red 4-6 ft
50 ft grid

Total Toxaphene Concentrations (ppm)

Surface Impoundment - Vicksburg Pl...

$46.00

FARM CHEMICALS HANDBOOK

'86

FERTILIZER DICTIONARY

BUYERS' GUIDE

APPLICATION EQUIPMENT

PESTICIDE DICTIONARY

FERTILIZER TRADE NAMES

Atrazine

CHEMICAL NAME: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine.
COMMON NAME: *atrazine*.
OTHER NAMES: *AAtrex** (Ciba-Geigy Corp.), *Atranex**, *Atred** (discontinued by Farmoplant), *Crisazina**, *Farmco Atrazine* (C.I.K. Australia), *Griffex** (Griffin), *Shell Atrazine Herbicide*, *Vectal* SC* (FBC Ltd.)
ACTION: Selective herbicide.
CHEMICAL PROPERTIES: Colorless crystals melting at 173-175° C. Solubility in water, 33 ppm at 25° C; in n-pentane, 360 ppm; in diethyl ether, 12,000 ppm; in methanol, 18,000 ppm; in ethyl acetate, 28,000 ppm; in chloroform, 52,000 ppm; in dimethyl sulfoxide, 183,000 ppm.
TOXICITY: Acute oral LD_{50} *(tech. atrazine)* (rat), 1780 mg/kg.
SIGNAL WORD: CAUTION.
HANDLING AND STORAGE CAUTIONS: Harmful if swallowed. Avoid contact with eyes, prolonged contact with skin, inhalation of dust. Use with adequate ventilation. Do not contaminate food, feed, or water supplies.

*Atred** must be stored in its sealed original containers, in well-aired, fresh and dry storehouses or in shaded and possibly well-aired places. It is recommended that the product be kept away from sources of heat, free flames, or spark-generating equipment. The biological activity of the product remains practically unvaried for 3 years under environmental conditions, provided the product is stored in its unopened and undamaged original containers, in shaded and possibly well-aired places.
APPLICATION: Used for season-long weed control in corn, sorghum, and certain other crops. At highest rates it is used for nonselective weed control in noncropped areas.

*Crisatrina** is a preemergent and early postemergent herbicide for use on corn, sorghum, coffee, African oil palm, sugarcane, pineapples, citrus groves, and bananas.
FORMULATIONS: *Atranex**, 50% and 80% wettable powder, 4 lb./gal. flowable, 4L liquid. *Griffex* 4L* contains 4 pounds flowable *atrazine*. *Drexel Atrazine 4L*, *Drexel Atrazine 5L* (contains 5 pounds of flowable *atrazine*/gallon), *Drexel Atrazine 80W*, and *Drexel Atrazine 90DF*. *Shell* Atrazine 4L* (4 pounds flowable), *Shell* Atrazine 90DF* (90% dry flowable) and *Shell* Atrazine 80W* (80% Wettable Powder). *Farmco Atrazine Flowable* contains 500 g/l. *FBC Atrazine 80**, *Vectal* SC* (500 g/l).
COMBINATION: *Alazine** is a mixture of *alachlor* and *atrazine*. *Atramet Combi* and *Crisazina-Crisatrina Kombi** are mixtures of *atrazine* and *ametryne*. *Drexel Atrazine Plus Linuron WP*. *Drexel Atrazine 4L* can be tank mixed with fertilizer solutions, emulsifiable oil, *Paraquat CL*, *alachlor 4EC*, or *propachlor 65W*. *Farmco Amizine-AA Flowable* contains 320 g/l *amitrole*, 320 g/l *atrazine*.

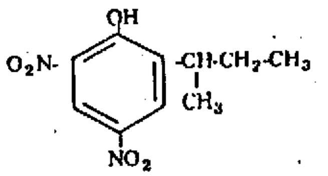
*See AAtrex**.

BP: CIFA, Laboratori Chimici (Italy)
Crystal Chemical Inter-America *(Crisazina**, *Crisazina-Crisatrina Kombi*)*
Drexel Chemical Co. *(Drexel* Atrazine 4L, 5L, 80W, 90DF* and *Atrazine Plus Linuron)*
FBC Ltd. (Great Britain) *(FBC Atrazine 80**, *Vectal* SC)*

Dinoseb

CHEMICAL NAME: 2-(*sec*-butyl)-4,6-dinitrophenol.
COMMON NAMES: *DNBP, dinitro, dinoseb (BSI, IS*[redacted]*), dinosebe* (France).
OTHER NAMES: *Basanite** (BASF Wyandotte), *Caldon*, Chemox* General, Chemox* PE, Chemsect* DNBP, DN-289** (product discontinued), *Dinitro*, Dinitro-3*, Dinitro General*, Dynamyte** (Drexel Chemical), *Elgetol* 318, Gebutox*, Hel-Fire** (Helena), *Kiloseb*, Nitropone* C, Premerge* 3, Sinox* General* (FMC Corp.), *Subitex*, Unicrop DNBP, Vertac* Dinitro Weed Killer 5, Vertac General Weed Killer, Vertac Selective Weed Killer.*
ACTION: Herbicide, desiccant, dormant fruit spray.
CHEMICAL PROPERTIES: Dark brown solid or viscous liquid, melting at 36-40° C.
TOXICITY: Acute oral LD_{50} (rat), 40-60 mg/kg.
SIGNAL WORD: DANGER-POISON.
APPLICATION: The phenol form *(Vertac General Weed Killer*, Sinox* General, Caldon)* is used as a general contact herbicide, in orchards, vineyards, forage legumes, and for killing potato vines and desiccating seed crops to facilitate harvest. The ammonium salt *(Vertac Selective*, Sinox* W)* is used as a selective contact herbicide in alfalfa, clover, birdsfoot trefoil, onions, garlic, peas, and small grains. Alkanolamine salts such as *Premerge* 3* are applied to kill germinating seeds contained in the upper soil surface layers in preemergence treatments and also in early postemergence and directed sprays in numerous crops. *Drexel Dynamyte* 3* for use on lentils.
The triethanolamine salt (*DN-289** not available commercially, *Elgetol*, Gebutox**) is commonly applied as a dormant fruit spray for control of many insects, mites and certain fungus diseases.
SLN: Nevada, Arizona, Virginia, North Carolina, Georgia, Alabama, Indiana, Illinois, and Missouri.
FORMULATIONS: Emulsifiable concentrate, aqueous solution, and oil solution.

COMBINATION: *DNBP* with *Alanap* (=Dyanap*); Premerge Plus** with *Dinitro, Klean-Krop*; Naptalam/dinoseb (Premerge Plus*).*
TANK MIXES: *Dynamyte* 3 plus Amiben* (soybeans); *Dynamyte* 3 plus Lasso* (soybeans, peanuts, potatoes).
See *Ancrack**



Dinoseb

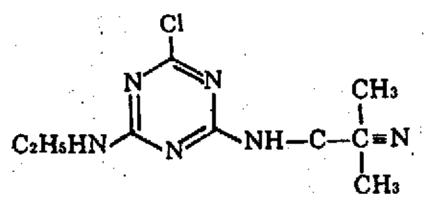
BP: Drexel Chemical Co. *(Dynamyte* 2.5, 3, 5, 300, T)*
Hoechst AG (West Germany) *(Caldon*, Gebutox*, Subitex*)*
A.H. Marks & Co., Ltd. (Great Britain)
Tifa Ltd. *(Chemox* PE, Chemox* General, Chemsect* DNBP)*
Uniroyal Chemical, Div. of Uniroyal, Inc. *(Dinoseb 1,3,5)*
Universal Crop Protection Ltd. (Great Britain) *(Unicrop* DNBP)*
Vertac Chemical Corp. *(Dinitro* 3, Dinitro* General, Premerge* 3, Premerge* Plus, Vertac* Dinitro* Weed Killer, Vertac* Dinitro* Weed Killer 5, Vertac* General Weed Killer, Vertac* Selective Weed Killer)*

Bladex*

CHEMICAL NAME: 2-[redacted]ro-6-(ethylamino)-S-triazin-2-yl]amino]-2-methylpropion[redacted]PAC).
COMMON NAME: *cyanazi*[redacted] ISO, WSSA).
OTHER NAMES: *SD 15418* (Shell Chemical), *WL 19805, Fortrol**.
ACTION: Selective herbicide, preplant incorporated, preemergence and postemergence.
CHEMICAL PROPERTIES: White crystalline solid melting at 167.5-169° C.
TOXICITY: Acute oral LD_{50} (rat), 182-320 mg/kg depending on concentration of *Cyananine* and carrier used. Acute dermal LD_{50} (rabbit) for 50% WP is > 2000 mg/kg (a.i.).
SIGNAL WORD: WARNING (wettable powder, liquid); CAUTION (granules).
ANTIDOTE: No specific antidote is known. See product label for practical treatment following ingestion or skin or eye contact.
HANDLING AND STORAGE CAUTIONS: Harmful if swallowed. Use with adequate ventilation and avoid breathing of dust. Avoid contact with the skin or eyes. Avoid contact with water, feed, or food. Keep out of reach of domestic animals, particularly cattle. Consumption of this product, spray solutions, or water contaminated with product can result in serious illness or possible death of bovines.
APPLICATION: For early preplant, preemergence or postemergence use on field corn; on sorghum preemergence as a tank mix combination with *Ramrod* (propachlor)* east of Rocky Mountains or with *Milogard* (propazine)* in Texas (Upper Gulf Coast/Coastal Bend, and Blackland areas), Oklahoma, and Kansas; cotton preemergence as a tank mix combination with *Zorial* in Alabama, Arkansas, Louisiana and Mississippi. *Bladex** and tank mix combinations with *MSMA* and/or *Dinitro** may be applied directed postemergence/layby in all cotton growing states, except do not apply *Bladex** with *Dinitro** in Arizona or California. For weed control on fallow cropland. Applications may be made by ground or aerial equipment on corn and fallow cropland, and ground equipment only on sorghum and cotton. Always read the label for *complete use directions.*
FORMULATION: (U.S.A.) 80% wettable powder, 43% 4 lb./gal. liquid and 90% dry flowable; (SICC) 50% wettable powder, 50% suspension concentrate.
COMBINATIONS: In corn, may be used preemergence in tank mix combination with *Lasso* (alachlor EC), atrazine, Dual* (metolachlor), Eradicane*, Paraquat CL, Sutan+* (butylate 6.7E).* Refer to appropriate state 24(c) label recommendations for various 3-way tank mix combinations. *Bladex** 80W or 90DF may be used postemergence in tank mix combinations with *atrazine* 80W or 90D or *Ban-*

Bladex* (Cont.)

*vel**. In sorghum, may be used in preemergence tank mix combinations with *Ramrod* (propachlor)* or *Milogard* (propazine)*. In cotton, may be used postemergence in tank mix combination with *MSMA* and/or *Dinitro*. On fallow cropland, may be used in tank mix combination with *Paraquat CL;* also with *atrazine* in certain states. May be used as an early preplant treatment for cotton in California. Consult state 24(c) labels for recommendations concerning *Bladex** as an early preplant application to land intended for grain sorghum (Nebraska, Kansas) and winter wheat (Nebraska, Kansas, Oklahoma).
In Europe *Bladex* S.C.* mixtures such as *Bladex*/MCPA* (4 liters/ha) *Bladex*/CMPP* (4 liters/ha) and *Bladex*/2.4-DP (WP)*-(3-4 kg/ha) have been successfully used as a postemergent application in cereals. In forestry *(Bladex*/atrazine (S.C.)* may be used from 10 liters/ha to control most grasses and broadleaf weeds. For potato, *Bladex*/linuron (W.P.)* is used at 1.5-5.0 kg/ha as a preemergence treatment to control grasses and broadleaf weeds. For maize *Bladex*/atrazine S.C.* is used at 3-4 kg a.i./ha as a preemergent application and gives wide control of grasses and broadleaf weeds. In Europe *Bladex* is also used successfully in mixtures in soybeans to control broadleaf weeds. Application is preemergence. *Extrazine 4L* (Shell) *(Bladex + atrazine)* for field corn only.



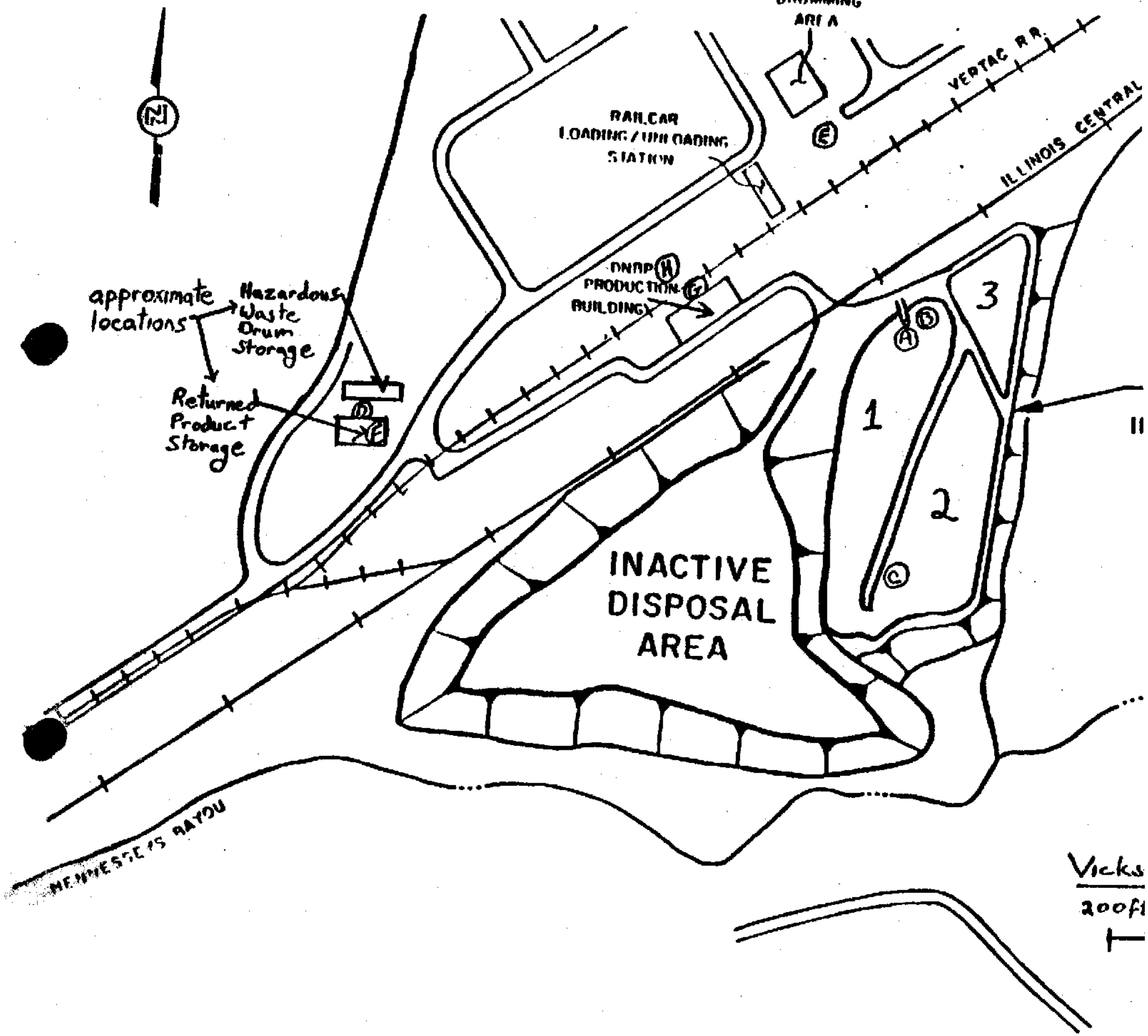
Cyanazine

BP: Shell Chemical Co.
Shell International Chemical Co., Ltd. (London)

Vicksburg Chemical | 9-3-86 | 1/1

#	Peramater	Type	Location
VC 1	Organics (P)*	Water	Influent to Lagoon 1
VC 2	Metals	Water	Influent to Lagoon 1
VC 3	Organics (P)	Sediment	" " " "
VC 4	Metals	Sediment	" " " "
VC5	Organics	Water	Lagoon # 2
VC6	Metals	Water	Lagoon # 2
VC7	Organics	Sludge	Lagoon # 2
VC8	Metals (P)	Sludge	" "
VC9	Organics (P)	Water	Sump Near atrazine Plant
VC10	Metals	Water	" " " "
VC11	Organics	Water	Sump Below Product drumming Area
VC12	Metals (P)	Water	" " " " "
VC13	Organics	Sediment	Returned Product Storage Area
VC14	Metals	Sediment	" " " "
VC15	Organics (P)	Soil	Northwest of DNBP Plant
VC16	Metals	Soil	" " " "
VC 17	Organics	Water	Sump Northwest of DNBP Plan
VC 18	Metals (P)	Water	" " " " "

* (P) denotes picture taken



PRODUCT DRUMMING AREA
VERTAC R.R.
ILLINOIS CENTRAL
RAILCAR LOADING / UNLOADING STATION
DNBP PRODUCTION BUILDING
approximate locations
Hazardous Waste Drum Storage
Returned Product Storage
INACTIVE DISPOSAL AREA
1
2
3
HENNESSEY'S BAYOU

Summary
SAMPLE RESULTS - VICKSBURG CHEMICAL

Sample #	Sample Type/Location	DNBP(ppm)	Atrazine(ppm)	Total chrome ppm	Total Arsenic ppm	Total Lead ppm
VC-1	Water; Influent pipe to lagoon	8	0.03	0.03	.29	.008
VC-2	Water; Influent pipe to lagoon					
VC-3	Sludge; Pond No. 1	13,000	5	123	362	142
VC-4	Sludge; Pond No. 1					
VC-5	Water; Lagoon No. 2	6	0.03	.05	.74	.01
VC-6	Water; Lagoon No. 2					
VC-7	Sludge; Lagoon No. 2	5.8		10.2	21	5.3
VC-8	Sludge; Lagoon No. 2					
VC-9	Water; sump near returned product area	130	15	.03	2.47	.05
VC-10	Water; sump near returned product area					
VC-11	Water; sump below product drumming area	260	.2	108	.68	2.9
VC-12	Water; sump below product drumming area					
VC-13	Solids; returned product area	330,000		47.1	44.3	16.7
VC-14	Solids; returned product area					
VC-15	Soil; N.W. of NDBP plant	96		40.1	27.8	170
VC-16	Soil; N.W. of DNBP plant					
VC-17	Water; sump N.W. of DNBP plant	300	0.01	<.03	.02	.02
VC-18	Water; sump N.W. of DNBP plant					

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1114

I. GENERAL INFORMATION: Facility Name Vicksburg Chemicals
County Code ______ NPDES Permit No. ______
Discharge No. ______ Date Requested 9/4/86
Sample Point Identification VC 2
Requested By McCord Data To Jack McCord
Type of Sample: Grab (X) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition Warm and cloudy Collected By MSR,JBM,MLB
Where Taken Influent to lagoon 1

	Type	Parameters	Preservative	Date	Time
1.	Water	Total Metals	HNO_3 - Ice	9/3/86	1146
2.		EP Toxicity			
3.					
4.					
5.					

II. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ______
V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139
Recorded By dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	(x)	0.03	mg/1	LC	9/12/86
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	(x)	.008	mg/1	LC	9/9/86
Cyanide	(000722)	( )		mg/1		
Arsenic		(x)	0.29	mg/1	LC	9/8/86
Selenium		(x)	< .003	mg/1	LC	9/8/86
Barium		(x)	0.04	mg/1	LC	9/10/86
Cadmium		(x)	0.02	mg/1	LC	9/12/86
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks 7 day turn around

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL

[redacted] SAMPLE REQUEST FORM [redacted]ab Bench No. 1113

I. GENERAL INFORMATION: Facility Name Vicksburg Chemicals
County Code ______ NPDES Permit No. ______
Discharge No. ______ Date Requested 9/5/86
Sample Point Identification VC 4
Requested By ______ Data To Jack McCord
Type of Sample: Grab (X) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition Warm and cloudy Collected By MSR,JBM,MLB
Where Taken Influent pipe to lagoon #2

	Type	Parameters	Preservative	Date	Time
1.	Sediment	Total metals	Ice	9/3/86	1146
2.		EP Toxic Test			
3.					
4.					
5.					

II. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ______

V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139
Recorded By Dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	(X)	123 mg/kg	LC	9/21/86
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	(X)	142 mg/kg	LC	9/9/86
Cyanide	(000722)	( )	mg/l		
Arsenic		(X)	362 mg/kg	LC	9/9/86
Selenium		(X)	2.68 mg/kg	LC	9/9/86
Barium		(X)	64.2 mg/kg	LC	9/10/86
Cadmium		(X)	1.90 mg/kg	LC	9/21/86
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks 7 day turn around

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1112

I. GENERAL INFORMATION: Facility Name Vicksburg Chemicals

County Code ______ NPDES Permit No. ______

Discharge No. ______ Date Requested 9/4/86

Sample Point Identification VC 6

Requested By ______ Data To Jack McCord

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ______

I. SAMPLE IDENTIFICATION:

Environment Condition Warm and cloudy Collected By MSR,JBM,MLB

Where Taken Lagoon #2

	Type	Parameters	Preservative	Date	Time
1.	Water	Total Metals	HNO_3-Ice	9/3/86	1215
2.		EP Toxic Metals			
3.					
4.					
5.					

I. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

V. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ______

V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139

Recorded By Dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/l		*
COD	(000340)	( )		mg/l		
TOC	(000680)	( )		mg/l		
Suspended Solids	(099000)	( )		mg/l		
TKN	(000625)	( )		mg/l		
Ammonia-N	(000610)	( )		mg/l		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/l		
Oil and Grease(1)	(000550)	( )		mg/l		
Oil and Grease(2)	(000550)	( )		mg/l		
Chlorides	(099016)	( )		mg/l		
Phenol	(032730)	( )		mg/l		
Total Chromium	(001034)	(x)	0.05	mg/l	LC	9/12/86
Hex. Chromium	(001032)	( )		mg/l		
Zinc	(001092)	( )		mg/l		
Copper	(001042)	( )		mg/l		
Lead	(017501)	(x)	0.01	mg/l	LC	9/9/86
Cyanide	(000722)	( )		mg/l		
Arsenic		(x)	0.74	mg/l	LC	9/9/86
Selenium		(x)	0.05	mg/l	LC	9/9/86
Barium		(x)	0.06	mg/l	LC	9/10/86
Cadmium		(x)	0.01	mg/l	LC	9/12/86
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks 7 day turn around

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

ab Bench No. 1111

I GENERAL INFORMATION: Facility Name Vicksburg Chemicals
County Code ____ NPDES Permit No. ____
Discharge No. ____ Date Requested ____
Sample Point Identification VC 8
Requested By ____ Data To Jack McCord
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ____

I. SAMPLE IDENTIFICATION:
Environment Condition Warm and cloudy Collected By MSR,JBM,MLB
Where Taken Lagoon #2

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Total Metals	Ice	9/3/86	1220
2.		EP Toxic Metals			
3.					
4.					
5.					

I. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

V. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ____
V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139
Recorded By Dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/l		*
COD	(000340)	( )		mg/l		
TOC	(000680)	( )		mg/l		
Suspended Solids	(099000)	( )		mg/l		
TKN	(000625)	( )		mg/l		
Ammonia-N	(000610)	( )		mg/l		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/l		
Oil and Grease(1)	(000550)	( )		mg/l		
Oil and Grease(2)	(000550)	( )		mg/l		
Chlorides	(099016)	( )		mg/l		
Phenol	(032730)	( )		mg/l		
Total Chromium	(001034)	(x)	10.2	mg/kg	LC	9/12/86
Hex. Chromium	(001032)	( )		mg/l		
Zinc	(001092)	( )		mg/l		
Copper	(001042)	( )		mg/l		
Lead	(017501)	(x)	5.30	mg/kg	LC	9/9/86
Cyanide	(000722)	( )		mg/l		
Arsenic		(x)	21.0	mg/kg	LC	9/9/86
Selenium		(x)	0.50	mg/kg	LC	9/9/86
Barium		(x)	49.3	mg/kg	LC	9/10/86
Cadmium		(x)	1.30	mg/kg	LC	9/12/86
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks 7 day turn around

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1110

I. GENERAL INFORMATION: Facility Name Vicksburg Chemical
County Code ______ NPDES Permit No. ______
Discharge No. ______ Date Requested 9/4/86
Sample Point Identification VC 10
Requested By ______ Data To J. McCord
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:
Environment Condition Warm and cloudy Collected By MSR,JBM,MLB
Where Taken Sump near atrazine plant

	Type	Parameters	Preservative	Date	Time
1.	Water	Total Metals	HNO_3 - Ice	9/3/86	145
2.		EP Toxic Test			
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ______

V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139
Recorded By Dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/l		*
COD	(000340)	( )		mg/l		
TOC	(000680)	( )		mg/l		
Suspended Solids	(099000)	( )		mg/l		
TKN	(000625)	( )		mg/l		
Ammonia-N	(000610)	( )		mg/l		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/l		
Oil and Grease(1)	(000550)	( )		mg/l		
Oil and Grease(2)	(000550)	( )		mg/l		
Chlorides	(099016)	( )		mg/l		
Phenol	(032730)	( )		mg/l		
Total Chromium	(001034)	(x)	0.03	mg/l	LC	9/21/86
Hex. Chromium	(001032)	( )		mg/l		
Zinc	(001092)	( )		mg/l		
Copper	(001042)	( )		mg/l		
Lead	(017501)	(x)	.005	mg/l	LC	9/9/86
Cyanide	(000722)	( )		mg/l		
Arsenic		(x)	2.47	mg/l	LC	9/9/86
Selenium		(x)	0.01	mg/l	LC	9/9/86
Barium		(x)	0.02	mg/l	LC	9/10/86
Cadmium		(x)	0.02	mg/l	LC	9/12/86
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks 7 day turn around

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1109

I. GENERAL INFORMATION: Facility Name Vicksburg Chemical
County Code ________ NPDES Permit No. ________
Discharge No. ________ Date Requested ________
Sample Point Identification VC 12
Requested By ________ Data To J McCord
Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( ) ________

II. SAMPLE IDENTIFICATION:
Environment Condition Warm and cloudy Collected By MSR,JBM,MLB
Where Taken Sump below product drumming area

	Type	Parameters	Preservative	Date	Time
1.	Water	Total Metals	HNO_3-Ice	9/3/86	145
2.		EP Toxic Test			
3.					
4.					
5.					

II. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ________

V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139
Recorded By Dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	(X)	108	mg/1	LC	9/12/86
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	(X)	2.90	mg/1	LC	9/9/86
Cyanide	(000722)	( )		mg/1		
Arsenic		(X)	0.68	mg/1	LC	9/8/86
Selenium		(X)	0.11	mg/1	LC	9/8/86
Barium		(X)	0.97	mg/1	LC	9/10/86
Cadmium		(X)	0.03	mg/1	LC	9/12/86
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks 7 day turn around

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1108

I. GENERAL INFORMATION: Facility Name Vicksburg Chemical
County Code
NPDES Permit No.
Discharge No.
Date Requested 9/4/86
Sample Point Identification VC 14
Requested By
Data To J. McCord
Type of Sample: Grab (X) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:
Environment Condition warm and cloudy
Collected By MSR,JBM,MLB
Where Taken Returned product storage area

	Type	Parameters	Preservative	Date	Time
1.	Sediment	Total Metal Scan	Ice	9/3/86	210
2.		EP Toxic Scan			
3.					
4.					
5.					

II. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139
Recorded By Dorothy lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	(X)	47.1 mg/kg	LC	9/12/86
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	(X)	16.7 mg/kg	LC	9/9/86
Cyanide	(000722)	( )	mg/1		
Arsenic		(X)	44.3 mg/kg	LC	9/9/86
Selenium		(X)	4.06 mg/kg	LC	9/9/86
Barium		(X)	78.5 mg/kg	LC	9/10/86
Cadmium		(X)	5.50 mg/kg	LC	9/12/86
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks 7 day turn around

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Lab Bench No. 1107

I. GENERAL INFORMATION: Facility Name Vicksburg Chemical

County Code ______ NPDES Permit No. ______

Discharge No. ______ Date Requested 9/4/86

Sample Point Identification VC 16

Requested By ______ Data To J. McCord

Type of Sample: Grab (X) Composite (Flow) (Time) Other ( ) ______

II. SAMPLE IDENTIFICATION:

Environment Condition Warm and cloudy Collected By MSR,JBM,MLB

Where Taken Northwest of DNBP Plant

	Type	Parameters	Preservative	Date	Time
1.	Soil	Total Metal Scan	Ice	9/3/86	220
2.		EP Toxic Scan			
3.					
4.					
5.					

III. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

IV. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( ) ______

V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139

Recorded By Dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	(x)	40.1 mg/kg	LC	9/12/86
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	(x)	170 mg/kg	LC	9/9/86
Cyanide	(000722)	( )	mg/l		
Arsenic		(x)	27.8 mg/kg	LC	9/9/86
Selenium		(x)	1.27 mg/kg	LC	9/9/86
Barium		(x)	71.5 mg/kg	LC	9/10/86
Cadmium		(x)	3.00 mg/kg	LC	9/12/86
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks 7 day turn around

*Date of Test Initiation

SAMPLE REQUEST FORM — Lab Bench No. 1106

I. GENERAL INFORMATION: Facility Name Vicksburg Chemical

County Code ______ NPDES Permit No. ______

Discharge No. ______ Date Requested 9/4/86

Sample Point Identification VC 18

Requested By ______ Data To J.McCord

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

I. SAMPLE IDENTIFICATION:

Environment Condition Warm and cloudy Collected By MSR,JBM,MLB

Where Taken Sump northwest of DNBP Plant

	Type	Parameters	Preservative	Date	Time
1.	Water	Total Metals Scan	HNO_3 - Ice	9/3/86	238
2.		EP Toxic Scan			
3.					
4.					
5.					

I. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

V. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

V. LABORATORY: Received By Jackie Key Date 9/4/86 Time 1139

Recorded By Dorothy Lewis Date Sent to State Office 9/12/86

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/1		*
COD	(000340)	( )		mg/1		
TOC	(000680)	( )		mg/1		
Suspended Solids	(099000)	( )		mg/1		
TKN	(000625)	( )		mg/1		
Ammonia-N	(000610)	( )		mg/1		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/1		
Oil and Grease(1)	(000550)	( )		mg/1		
Oil and Grease(2)	(000550)	( )		mg/1		
Chlorides	(099016)	( )		mg/1		
Phenol	(032730)	( )		mg/1		
Total Chromium	(001034)	(x)	< 0.03	mg/1	LC	9/12/86
Hex. Chromium	(001032)	( )		mg/1		
Zinc	(001092)	( )		mg/1		
Copper	(001042)	( )		mg/1		
Lead	(017501)	(x)	0.02	mg/1	LC	9/9/86
Cyanide	(000722)	( )		mg/1		
Arsenic		(x)	0.02	mg/1	LC	9/8/86
Selenium		(x)	< .003	mg/1	LC	9/8/86
Barium		(x)	0.05	mg/1	LC	9/10/86
Cadmium		(x)	0.01	mg/1	LC	9/12/86
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks 7 day turn around

*Date of Test Initiation

MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI
STATE CHEMICAL LABORATORY
MSU
BOX CR - MISSISSIPPI STATE, MISSISSIPPI 39762
MSCL
DR. JAMES P MINYARD. JR.
State Chemist

September 15, 1986

Analysis No. 723,817 - 723,825

Analysis of WATER, SOILS & SEDIMENTS Marked: BPC (See Below)

Received on 9/4/86 from Bureau of Pollution Control

Address Box 10385, Jackson, MS 39209

RESULTS:

MSCL No.	Sample	Bureau of Pollution Control Identification
723,817	Water	Vicksburg Chemical, VC-1
723,818	Water	Vicksburg Chemical, VC-5
723,819	Water	Vicksburg Chemical, VC-9
723,820	Water	Vicksburg Chemical, VC-11
723,821	Water	Vicksburg Chemical, VC-17
723,822	Sediment	Vicksburg Chemical, VC-3
723,823	Sediment	Vicksburg Chemical, VC-7
723,824	Sediment	Vicksburg Chemical, VC-13
723,825	Soil	Vicksburg Chemical, VC-15

Attached sheets present the results from our analysis of the above water, sediment and soil samples for acid and base/neutral priority pollutants. The minimum quantifiable level (MQL) for water is normally 5 micrograms per liter, and for soil is normally 500 micrograms per kilogram. For samples such as these having high levels of organic matter, the extracts must be diluted, thereby increasing the MQL by the dilution factor. The applicable MQL for each sample is indicated on each Data Sheet for the specified priority pollutants, with the exception of Toxaphene. The MQL for Toxaphene is 10 times the stated MQL for each sample. Copies of computer generated GC/MS data are enclosed.

Also attached are results from analysis of the soil and sediment samples for arsenic and seven metals.

James P. Minyard, Jr.
State Chemist

PLEASE GIVE NUMBER WHEN REFERRING TO THIS ANALYSIS

MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI
STATE CHEMICAL LABORATORY
MSCL
MSU
BOX CR · MISSISSIPPI STATE, MISSISSIPPI 39762
September 15, 1986
DR. JAMES P. MINYARD, JR.
State Chemist

Analysis No. 723,822 - 723,825

Analysis of SOILS & SEDIMENTS

Received on 9/4/86

Marked: from Bureau of Pollution Control

Address Box 10385, Jackson, MS 39209

RESULTS:

PARTS PER MILLION

Lab. No.	Marked	Barium	Cadmium	Chromium	Lead	Silver	Mercury	Selenium	Arsenic
723,822	VC-3	0.20	0.002	ND*	ND	ND	0.001	0.03	ND
723,823	VC-7	0.15	ND	ND	ND	ND	ND	0.04	0.001
723,824	VC-13	0.13	0.08	0.12	1.0	ND	ND	0.04	0.01
723,825	VC-15	0.21	0.02	0.08	0.30	ND	0.001	0.03	ND

*ND = None Detected at the following Lower Levels of Detection:

Parts per Million (Milligrams per Kilogram)	
Cadmium	0.001
Chromium	0.01
Lead	0.02
Silver	0.01
Mercury	0.0004
Arsenic	0.001

James P. Minyard, Jr.
State Chemist

PLEASE GIVE NUMBER WHEN REFERRING TO THIS ANALYSIS

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,817 **MARKED** VC-1

ANALYSIS OF Water

ACID COMPOUNDS MQL = 10

	ND*	µg/l or µg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		8,000

BASE/NEUTRAL COMPOUNDS MQL = 10

	ND*	µg/l or µg/kg
acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

BASE/NEUTRAL COMPOUNDS

	ND	µg/l or µg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine		Trace

VOLATILE COMPOUNDS

acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

James P. Minyard, Jr.
State Chemist

[redacted]

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,822 **MARKED** VC-3

ANALYSIS OF Sediment

ACID COMPOUNDS MQL = 100,000

	ND*	µg/l or µg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		13,000,000 (1.3%)

BASE/NEUTRAL COMPOUNDS

	ND	µg/l or µg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine	ND	

BASE/NEUTRAL COMPOUNDS MQL = 100,000

acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

VOLATILE COMPOUNDS

acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

ND* = None Detected

State Chemist

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,818 **MARKED** VC-5

ANALYSIS OF Water

ACID COMPOUNDS MQL = 10

	ND*	μg/1 or μg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		6,300

BASE/NEUTRAL COMPOUNDS

	ND	μg/1 or μg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine		70

BASE/NEUTRAL COMPOUNDS MQL = 10

acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

VOLATILE COMPOUNDS

acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

James P. Minyard, Jr.

State Chemist

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,823 **MARKED** VC-7

ANALYSIS OF Sediment

ACID COMPOUNDS MQL = 500

	ND*	μg/l or μg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		5,800

BASE/NEUTRAL COMPOUNDS MQL = 500

acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

BASE/NEUTRAL COMPOUNDS

	ND	μg/l or μg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine		2,600
Toxaphene		Trace

VOLATILE COMPOUNDS

acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

James P. Minyard, Jr.

State Chemist

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,819 **MARKED** VC-9

ANALYSIS OF Water

ACID COMPOUNDS MQL = 50

	ND*	μg/l or μg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		50
4,6-dinitro-2-methylphenol		60
pentachlorophenol		
phenol		
DNBP		23,000

BASE/NEUTRAL COMPOUNDS MQL = 10

acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

BASE/NEUTRAL COMPOUNDS

	ND	μg/l or μg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine		15,000
Toxaphene		Trace

VOLATILE COMPOUNDS

acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

James P. Minyard, Jr.
State Chemist

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,820 **MARKED** VC-11

ANALYSIS OF Water

ACID COMPOUNDS MQL = 1000

	ND*	µg/l or µg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		22,000
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		260,000

BASE/NEUTRAL COMPOUNDS MQL = 200

acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

BASE/NEUTRAL COMPOUNDS

	ND	µg/l or µg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine		12,000

VOLATILE COMPOUNDS

acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

James P. Minyard, Jr.

State Chemist

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,824 MARKED VC-13

ANALYSIS OF Sediment

ACID COMPOUNDS MQL = 1,000,000

ACID COMPOUNDS	ND*	µg/l or µg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		330,000,000 (33%)

BASE/NEUTRAL COMPOUNDS	ND	µg/l or µg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine	ND	

BASE/NEUTRAL COMPOUNDS MQL = 1,000,000

BASE/NEUTRAL COMPOUNDS		
acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

VOLATILE COMPOUNDS

VOLATILE COMPOUNDS		
acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

State Chemist

[redacted]

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,825 **MARKED** VC-15

ANALYSIS OF Soil

ACID COMPOUNDS MQL = 5,000

ACID COMPOUNDS	ND*	µg/l or µg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		95,000

BASE/NEUTRAL COMPOUNDS MQL = 5,000

BASE/NEUTRAL COMPOUNDS	ND	µg/l or µg/kg
acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		10,000
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

BASE/NEUTRAL COMPOUNDS

BASE/NEUTRAL COMPOUNDS	ND	µg/l or µg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Toxaphene		Trace
Atrazine	ND	

VOLATILE COMPOUNDS

VOLATILE COMPOUNDS		
acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

James P. Minyard, Jr.
State Chemist

MISSISSIPPI STATE CHEMICAL LABORATORY
PRIORITY POLLUTANT DATA SHEET

MSCL ANALYSIS NO. 723,821 **MARKED** VC-17

ANALYSIS OF Water

ACID COMPOUNDS MQL = 50

	ND*	µg/l or µg/kg
2,4,6-trichlorophenol		
p-chloro-m-cresol		
2-chlorophenol		
2,4-dichlorophenol		
2,4-dimethylphenol		
2-nitrophenol		
4-nitrophenol		
2,4-dinitrophenol		
4,6-dinitro-2-methylphenol		
pentachlorophenol		
phenol		
DNBP		30,000

BASE/NEUTRAL COMPOUNDS

	ND	µg/l or µg/kg
benzo(a)pyrene		
benzo(b)fluoranthene		
benzo(k)fluoranthene		
chrysene		
acenaphthylene		
anthracene		
benzo(ghi)perylene		
fluorene		
phenanthrene		
dibenzo(a,h)anthracene		
indeno(1,2,3-cd)pyrene		
pyrene		
Atrazine		10

BASE/NEUTRAL COMPOUNDS MQL = 10

acenaphthene		
benzidine		
1,2,4-tichlorobenzene		
hexachlorobenzene		
hexachloroethane		
bis(2-chloroethyl)ether		
2-chloronaphthalene		
1,2-dichlorobenzene		
1,3-dichlorobenzene		
1,4-dichlorobenzene		
3,3-dichlorobenzidine		
2,4-dinitrotoluene		
2,6-dinitrotoluene		
1,2-diphenylhydrazine		
fluoranthene		
4-chlorophenyl phenyl ether		
4-bromophenyl phenyl ether		
bis(2-chloroisopropyl)ether		
bis(2-chloroethoxy)methane		
hexachlorobutadiene		
hexachlorocyclopentadiene		
isophorone		
naphthalene		
nitrobenzene		
N-nitrosodiphenylamine		
N-nitrosodipropylamine		
bis(2-ethylhexyl)phthalate		
benzyl butyl phthalate		
di-n-butyl phthalate		
di-n-octyl phthalate		
diethyl phthalate		
dimethyl phthalate		
benzo(a)anthracene		

VOLATILE COMPOUNDS

acrolein		
acrylonitrile		
benzene		
carbon tetrachloride		
chlorobenzene		
1,2-dichloroethane		
1,1,1-trichloroethane		
1,1-dichloroethane		
1,1,2-trichloroethane		
1,1,2,2-tetrachloroethane		
chloroethane		
2-chloroethylvinyl ether		
chloroform		
1,1-dichloroethene		
trans-1,2-dichloroethene		
1,2-dichloropropane		
trans-1,3-dichloropropene		
cis-1,3-dichloropropene		
ethylbenzene		
methylene chloride		
chloromethane		
bromomethane		
bromoform		
bromodichloromethane		
fluorotrichloromethane		
dichlorodifluoromethane		
chlorodibromomethane		
tetrachloroethene		
toluene		
trichloroethene		
vinyl chloride		
o-xylene		

ND* = None Detected

James P. Minyard, Jr.

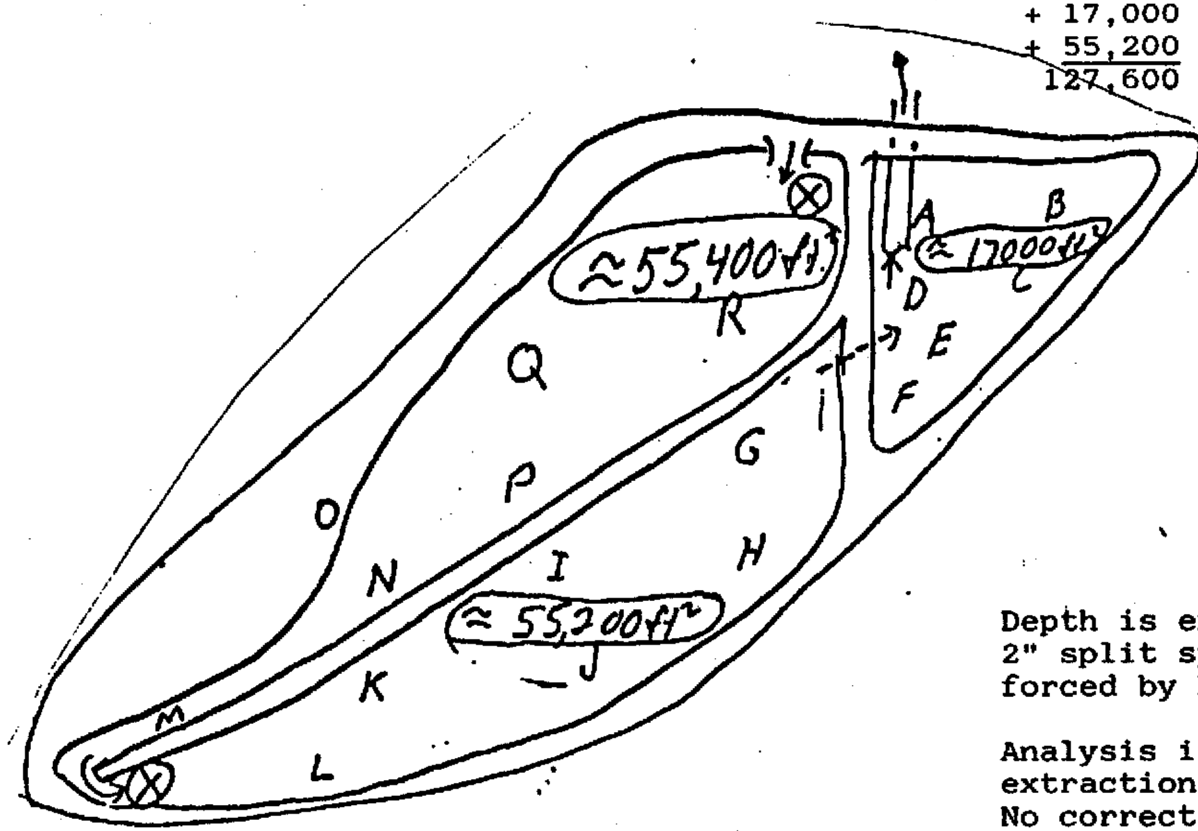
State Chemist

Sediment Depth/Analysis
ft. - in.   mg/kg

A 1-0 / 12
B 1-0 / 20
C 0-4 / 28
D 0-4 / 37
E 1-0 / 82
F 1-0 / 30
G 1-0 / 6.8
H 0-9 / 16
I 1-3 / 15
J 1-3 / 24
K 1-6 / 2.0
L 1-6 / 8.4
M 1-6 / 70
N 1-6 / 74
*O 0-2 / 31
P 7-0 / 46
Q 6-0 / 52
R 7-0 / 172

Samples collected in 2' long, 2" dia. split spoon : composited along length of core.
Letters indicate approx. sample location

Total Sediment Surface
= 55,400
+ 17,000
+ 55,200
127,600 ft^2



Depth is extent to which 2" split spoon could be forced by hand into sediment.

Analysis is for DNBP by extraction and GC injection. No correction has been made for less than 100% extraction efficiency. Results are on an as sampled (wet sludge) basis.

Ⓧ⇒ State Sample Locations

*O.- from exposed delta
sample taken from top 2 inches

Vertac Sampling Results of Impoundment
produced in hearing 9-16-86

Questions to Be Answered by Vicksburg Chemical Corporation

~~Sam Mabry~~

~~The consensus here was to broaden the nature of the questions in order to delineate all of Vicksburg Chem Co's waste streams. Here are some of the questions and information the EPA would like to see.~~

~~General Questions~~

1. Provide a list of all products and identifiable intermediates produced by the Vicksburg facility (both north and south plants) since November 19, 1980. Include with this list the time period(s) in which each product was produced and the quantities produced.

2. Identify all waste streams associated with the above-mentioned products. Detail the constituents in each waste stream, the route and ultimate fate of each waste stream, the time of existence of each waste stream, and the quantities involved in each waste stream. This should include all leaks, spills and regular process waste streams.

3. Designate which of the above waste streams VCC considers to be hazardous waste, and provide determination date and reports required by 40 CFR 262.11. (in addition to those submitted to the Bureau of Pollution Control)

4. Provide any and all piping and flow diagrams concerning the handling of waste streams since November 19, 1980. Indicate any changes made to the piping or flow patterns of waste streams since November 19, 1980. This should include all pertinent piping (above and below ground), open areas, ditches and/or lagoons at both the north and south facilities.

5. Provide a descriptive listing of all hazardous waste either received by VCC or shipped off-site. Indicate quantities and types manifested and all data and reports generated as to determine the nature of the waste as required by 40 CFR 262.11.

6. Provide a copy of any spill reports made under the NPDES program or the CERCLA program.

~~If you have any questions call me~~

~~Pat Pearson~~

WCS - USEPA

~~Questions to be Answered by Vicksburg Chemical~~

Questions Relating to Specific Waste Streams

7. Has Vicksburg Chemical produced chlordane, methyl parathion or disulfoton, since November 1980?

8. If so, has any of the wastewater from the production of the above products been placed in the surface impoundments?

9. If the process wastewater was not placed into the impoundment, how was it handled?

10. If the process wastewater was placed into the impoundment, was the wastewater treated prior to its entering the impoundment?

11. EPA's background document for the listing of untreated toxaphene wastewater (K098) and sludges from toxaphene wastewater treatment (K041) specifies, "wastewater is generated from the toxaphene production processes (leaks, spills, and washdowns), as well as from the scrubbing of vent gasses in the HCL absorption and recovery step." Cedar Chemical should provide a detailed schematic of its toxaphene production process at the Vicksburg plant, describing how wastewater such as that described above was handled. If the Vicksburg plant did not generate such a wastewater, an explanation of how such wastewater generation was avoided should be provided.

12. In an August 16, 1984, letter to the Mississippi Bureau of Pollution Control (MBPC), Vertac states, "In reviewing our past toxaphene discharge data I find that Vertac's last permit excursions occurred on February 16, 1982 (11.5 ppb)." Cedar Chemical should provide an explantion of the source of this toxaphene in the wastewater.

13. On February 17, 1983, the MBPC sampled both the sludge from the east side of the impoundment and the stream bank on the east side of the impoundment where the impoundment dike had failed. Analysis of these samples indicated the sediments contained 280 ppm and 360 ppm of toxaphene respectively. Cedar Chemical should provide an explanation of the source of the toxaphene found in impoundment sediment samples.

To: Allen Malone
10-3-86

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P O Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone (601) 922-8242
(800) 523-0659

7215 Pine Forest Road • Pensacola, FL 32506
Telephone (904) 944-0311
(800) 874-0272

LABORATORY REPORT

86.1.2929 1/2

CLIENT: Vicksburg Chemical Corporation
LOCATION: Vicksburg, MS
DATE: 09/29/86
INVOICE NO.: 010870/ncr

COLLECTED BY: Client (7954)
DATE COLLECTED: 09/03/86
DATE RECEIVED: 09/08/86
DATE ANALYZED: 09/24/86

LABORATORY SAMPLE IDENTIFICATION

86094958 - Pond Inlet Sludge
86094959 - Pond Cross-Over Sludge

ANALYSES	IDENTIFICATION NO. 4958	4959		LIMIT	QUALITY CONTROL Standard or Spike Value	% Recovery	Relative % Deviation
Arsenic, EP Leachable, mg/l EPA No. D004	0.48	0.075		5.0	1.00	96	0
Barium, EP Leachable, mg/l EPA No. D005	<0.2	<0.2		100.0	1.00	99	0
Cadmium, EP Leachable, mg/l EPA No. D006	0.02	0.01		1.0	0.20	100	0
Chromium, EP Leachable, mg/l EPA No. D007	0.02	0.48		5.0	0.50	94	0
Chromium, Hexavalent, EP Leachable, mg/l, EPA No. D007	0.01	0.44		5.0	0.50	86	0
Lead, EP Leachable, mg/l EPA No. D008	0.28	0.23		5.0	1.00	109	0
Mercury, EP Leachable, mg/l EPA No. D009	<0.001	<0.001		0.2	0.004	80	2.3
Selenium, EP Leachable, mg/l EPA No. D010	<0.003	<0.003		1.0	0.010	90	0
Silver, EP Leachable, mg/l EPA No. D011	0.01	0.01		5.0	0.20	110	0
Endrin, EP Leachable, mg/l	<0.01	<0.01			0.6	73	0
Lindane, EP Leachable, mg/l	<0.01	<0.01			0.6	73	0

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, July, 1982, Test Methods for Evaluating Solid Waste (SW-846).

CERTIFICATION

Dorothy Dinsmore-King

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P O Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone (601) 922-8242
(800) 523-0659

7215 Pine Forest Road • Pensacola FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.2929 | 2/2

CLIENT: Vicksburg Chemical
LOCATION: Vicksburg, Mississippi
DATE: 09/26/86
INVOICE NO.: 010870/ncr

COLLECTED BY: Client (7954)
DATE COLLECTED: 09/03/86
DATE RECEIVED: 09/08/86
DATE ANALYZED: 09/24/86

LABORATORY SAMPLE IDENTIFICATION

86094958 - Pond Inlet Sludge
86094959 - Pond Cross-Over Sludge

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	4958	4959			STANDARD OR SPIKE VALUE	RECOVERY	RELATIVE DEVIATION
~~thoxychlor, EP Leachable, mg/l~~	~~<0.01~~	~~<0.01~~					
~~xaphene, EP Leachable, mg/l~~	~~<0.01~~	~~<0.01~~					
~~,4 - D, EP Leachable, mg/l~~	~~<0.01~~	~~<0.01~~					
~~,4,5 - TP Silvex, EP Leachable, mg/l~~	~~<0.01~~	~~<0.01~~					
~~EP TOXICITY" Extraction~~	~~Yes~~	~~Yes~~					

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, July, 1982, Test Methods for Evaluating Solid Waste (SW-846).

CERTIFICATION

Dorothea Dinsmore-King   Arthur Carmichael

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Bench No. 142

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.
County Code Warren NPDES Permit No. ____
Discharge No. ____ Date Requested ____
Sample Point Identification impoundment
Requested By Chuck Estes Data To Chuck Estes
Type of Sample: Grab (x) Composite (Flow) (Time) Other ( ) ____

I. SAMPLE IDENTIFICATION:
Environment Condition sunny and cool Collected By Chuck Estes
Where Taken ~~east side of impoundment near breech area~~

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene,Atrazine,Cyanazize	cool	2/7/83	3:00
2.	Sludge	DNBP	5ml H2SO4	"	3:15
3.		(Run totals and Ep			
4.		extract for these			
5.		parameters)			

I. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

V. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (x) field truck

V. LABORATORY: Received By DeJonnette King Date 2/8/83 Time 0815
Recorded By Dorothy Lewis Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/1		*
COD	(000340)	( )	mg/1		
TOC	(000680)	( )	mg/1		
Suspended Solids	(099000)	( )	mg/1		
TKN	(000625)	( )	mg/1		
Ammonia-N	(000610)	( )	mg/1		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/1		
Oil and Grease(1)	(000550)	( )	mg/1		
Oil and Grease(2)	(000550)	( )	mg/1		
Chlorides	(099016)	( )	mg/1		
Phenol	(032730)	( )	mg/1		
Total Chromium	(001034)	( )	mg/1		
Hex. Chromium	(001032)	( )	mg/1		
Zinc	(001092)	( )	mg/1		
Copper	(001042)	( )	mg/1		
Lead	(017501)	( )	mg/1		
Cyanide	(000722)	( )	mg/1		
Atrazine (EPT)		(X)	12550 ug/1	MB	3-15-83
Cyanozine(EPT)		(X)	650 ug/1	MB	3-15-83
Toxaphene(EPT)		(X)	< 20 ug/1	MB	3-15-83
DNBP (EPT)		(X)			
Atrazine (Total)		(X)	7,030 mg/kg	MB	4-11-83
Cyanozine (Total)		(X)	< 112 mg/kg	MB	4-11-83
Toxaphene (Total)		(X)	280 mg/kg	MB	4-11-83
DNBP (Total)		(X)			
		( )			
		( )			

Remarks DNBP results will follow

*Date of Test Initiation

BUREAU OF POLLUTION CONTROL
SAMPLE REQUEST FORM

Bench No. 141

I. GENERAL INFORMATION: Facility Name Vertac Chemical Co.

County Code warren NPDES Permit No.

Discharge No. Date Requested

Sample Point Identification stream bank

Requested By Chuck Estes Data To Chuck Estes

Type of Sample: Grab (X) Composite (Flow) (Time) Other ( )

I. SAMPLE IDENTIFICATION:

Environment Condition sunny and cool Collected By Chuck Estes

Where Taken on the east side of the impoundment levee at the breech area near the stream

	Type	Parameters	Preservative	Date	Time
1.	Sludge	Toxaphene, Atrazine, Cyanazine	Cool	2/7/83	3:10
2.	Sludge	DNBP	5ml H_2SO_4	2/7/83	4:00
3.					
4.					
5.					

I. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	( )			
D.O.	(000300)	( )			
Temperature	(000010)	( )			
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

V. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other (X) Field truck

V. LABORATORY: Received By DeJonnette King Date 2/8/83 Time 0815

Recorded By Dorothy Lewis Date Sent to State Office 4-14-83

Analysis	Computer Code	Request	Result	Analyst	Date Measured
BOD_5	(000310)	( )	mg/l		*
COD	(000340)	( )	mg/l		
TOC	(000680)	( )	mg/l		
Suspended Solids	(099000)	( )	mg/l		
TKN	(000625)	( )	mg/l		
Ammonia-N	(000610)	( )	mg/l		
Fecal Coliform(1)	(074055)	( )	colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )	colonies/100 ml		*
Total Phosphorus	(000665)	( )	mg/l		
Oil and Grease(1)	(000550)	( )	mg/l		
Oil and Grease(2)	(000550)	( )	mg/l		
Chlorides	(099016)	( )	mg/l		
Phenol	(032730)	( )	mg/l		
Total Chromium	(001034)	( )	mg/l		
Hex. Chromium	(001032)	( )	mg/l		
Zinc	(001092)	( )	mg/l		
Copper	(001042)	( )	mg/l		
Lead	(017501)	( )	mg/l		
Cyanide	(000722)	( )	mg/l		
Toxaphene		(X)	360 mg/kg	MB	4-12-83
Atrazine		(X)	645 mg/kg	MB	4-12-83
Cyanozine		(X)	<112 mg/kg	MB	4-12-83
DNBP		( )			
		( )			
		( )			
		( )			
		( )			
		( )			
		( )			

Remarks DNBP results will follow when completed

*Date of Test Initiation

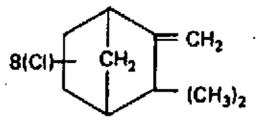
(3) Tisdale, W.H. and Williams, I., U.S. Patent 1,972,961, September 11, 1934, assigned to DuPont.

TOXAPHENE (CAMPHECHLOR IN U.K.)

Function: Insecticide (1)(2)(3)(4)

Chemical Name: Toxaphene

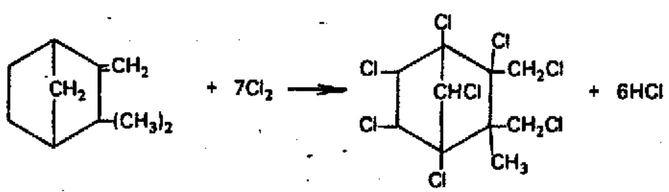
Formula:



Trade Names: Hercules 3956 (Hercules, Inc.)
Alltox®
Estonox®
Chem-Phene®
Geniphene®
Gy-phene®
Phenacide®
Phenatox®
Toxadust®
Toxaspra®

Manufacture

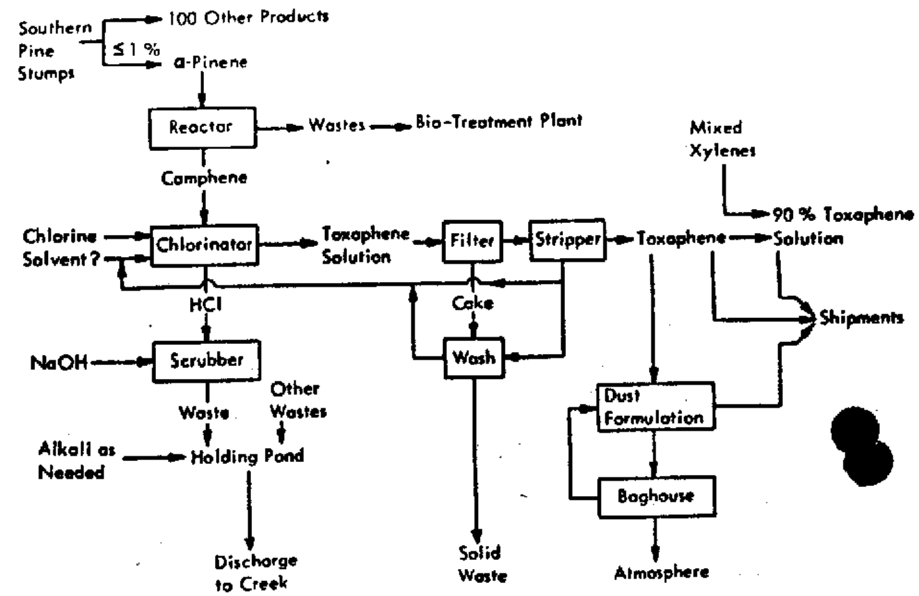
The raw materials for toxaphene manufacture are camphene and chlorine and the reaction is approximately as follows:



The initial reaction involving addition to the double bond is rapid while the second involving substitution proceeds with more difficulty, as pointed out by M.A. Phillips (5). The reaction temperature initially rises, due to the heat of reaction, to 85° to 90°C, and some cooling may be required. It then drops and may be 50° to 75°C at the end of the reaction. This chlorination reaction is carried out at atmospheric pressure. This reaction takes from 15 to 30 hours to reach completion. This reaction is carried out in the liquid phase using about 5 parts of carbon tetrachloride solvent per part of camphene feed, as described by G.A. Buntin (3)(4). Ultraviolet light is the catalyst for this reaction.

Lead-lined, glass-lined or nickel-clad vessels may be used for this reaction. The vessel should be equipped with a heat-exchange jacket, a reflux condenser and a well for the ultraviolet lamp. The carbon tetrachloride solvent is removed from the reaction product by distillation under reduced pressure after HCl and excess chlorine have been blown out. The residue from the distillation is allowed to solidify. A production and waste schematic for toxaphene manufacture is shown in Figure 54 (6).

Figure 54: Production and Waste Schematic for Toxaphene



Source: Reference (6)

Process Wastes and Their Control

Air: Air emissions from toxaphene production have been reported (B-15) to consist of the following:

Component	Kilograms per Metric Ton Pesticide Produced
HCl	2.65
Cl_2	0.25
Toluene	1.0
Toxaphene	5×10^{-4}

Air pollution control in toxaphene manufacture involves the following (B-15):

Control Device	Emissions Controlled	Reported Efficiency
Alkali and water scrubber	Solvent vapor, hydrogen chloride, chlorine	—
Stripping	Solvent vapor, hydrogen chloride, chlorine	—
Limestone adsorption	Solvent vapor, hydrogen chloride, chlorine	100
Baghouse	Toxaphene	—

The chlorinator waste HCl gas passes through a water absorber and the resulting muriatic acid is recovered or neutralized and sent to wastewater treatment. The toxaphene product then goes either to a solution or to a dust formulation step. Emissions from the dust formulation are vented to a baghouse, with the captured dust then recycled to the formulation step (B-10).

Product Wastes: Toxaphene is said to dehydrochlorinate in the presence of alkali, upon prolonged exposure to sunlight, and at temperatures of about 155°C. Reduction with sodium in isopropyl alcohol is the analytical method for total chloride (B-3).

Toxicity

The acute oral LD_{50} value for rats is 80 to 90 mg/kg which is moderately toxic.

Toxaphene is a widely used organochlorine insecticide that apparently has not caused a great deal of environmental harm, although it has been used in agriculture for many years. Because it is a complex mixture of uncharacterized camphene derivatives, very little is known about its metabolism in plants or other higher organisms. Considerable information is available, however, on its toxicity in laboratory animals and various aquatic organisms. An ADI of 0.00125 mg/kg/day was calculated on the basis of the chronic toxicity data (B-22).

A summary of the results of examination of over 100,000 samples of raw agricultural commodities by the FDA between 1963 and 1969 shows that toxaphene residues are seldom present. Thus, the possibility that large quantities of toxaphene residues could be found in drinking water is not great.

Toxaphene has demonstrated carcinogenic effects in laboratory animals. In addition, toxaphene is highly toxic to many aquatic invertebrate and vertebrate species and has been shown to cause the "broken back syndrome" in fish fry. These observations, together with reported bioconcentration factors as high as 91,000 indicate that toxaphene poses a threat to living organisms, particularly in the aquatic environment (B-26).

Allowable Limits on Exposure and Use

Air: The threshold limit value for chlorinated camphenes in air has been set at 0.5 mg/m^3 as of 1979. The tentative short term exposure limit is 1.0 mg/m^3 (B-23).

Water: In water, EPA set criteria (B-12) for toxaphene of 5 μg/l for domestic water supply and 0.005 μg/l for the protection of freshwater and marine aquatic life.

Subsequently, EPA has suggested (B-26) limits to protect freshwater aquatic life of 0.007 μg/l as a 24-hour average and the concentration should not exceed 0.47 μg/l at any time.

For toxaphene the criterion to protect saltwater aquatic life is 0.019 μg/l as a 24-hour average and the concentration should not exceed 0.12 μg/l at any time.

For the maximum protection of human health from the potential carcinogenic effects of exposure to toxaphene through ingestion of water and contaminated aquatic organisms, the ambient water concentration is zero. Concentrations of toxaphene estimated to result in additional lifetime cancer risks ranging from no additional risk to an additional risk of 1 in 100,000 have been determined by the EPA. The agency is considering setting criteria at an interim target risk level in the range of 10^{-5}, 10^{-6}, or 10^{-7} with corresponding criteria of 4.7×10^{-6} μg/l, 4.7×10^{-7} μg/l, and 4.7×10^{-8} μg/l, respectively (B-26).

Product Use: A rebuttable presumption against registration was issued on May 25, 1977 by EPA on the basis of oncogenicity and reductions in nontarget species.

In a notice dated February 14, 1969, the EPA (B-17) cancelled all uses of toxaphene products bearing directions for use on lettuce and cabbage except the following:

(1) Cabbage at application rates of 4.0 pounds actual/acre must have the warning statement "Do not apply after heads start to form."

(2) Lettuce at application rates of 5.0 pounds actual/acre must have the warning statement "Do not apply after seedling stage on leaf lettuce. Do not apply after heads begin to form on head of lettuce."

The tolerances set by the EPA for toxaphene in or on raw agricultural commodities are as follows:

	40 *CFR* Reference	Parts per Million
Apples	180.138	7.0
Apricots	180.138	7.0
Bananas	180.138	3.0
Bananas, pulp	180.138	0.3
Barley	180.138	5.0
Beans	180.138	7.0
Blackberries	180.138	7.0
Boysenberries	180.138	7.0
Broccoli	180.138	7.0
Brussels sprouts	180.138	7.0
Cabbage	180.138	7.0
Carrots	180.138	7.0
Cattle, fat of meat	180.138	7.0
Cauliflower	180.138	7.0
Celery	180.138	7.0
Citrus fruits	180.138	7.0
Collards	180.138	7.0
Corn	180.138	7.0
Cotton, seed	180.138	5.0
Cranberries	180.138	7.0
Cucumbers	180.138	7.0
Dewberries	180.138	7.0
Eggplant	180.138	7.0
Goats, fat of meat	180.138	7.0
Hazelnuts	180.138	7.0
Hickory nuts	180.138	7.0
Hogs, fat of meat	180.138	7.0
Horseradish	180.138	7.0
Horses, fat of meat	180.138	7.0
Kale	180.138	7.0
Kohlrabi	180.138	7.0
Lettuce	180.138	7.0
Loganberries	180.138	7.0
Nectarines	180.138	7.0
Oats	180.138	5.0
Okra	180.138	7.0
Onions	180.138	7.0
Parsnips	180.138	7.0
Peaches	180.138	7.0
Peanuts	180.138	7.0
Pears	180.138	7.0
Peas	180.138	7.0
Pecans	180.138	7.0
Peppers	180.138	7.0
Pimentos	180.138	7.0
Pineapples	180.138	3.0
Quinces	180.138	7.0
Radishes, tops	180.138	7.0
Radishes, with tops	180.138	7.0
Radishes, without tops	180.138	7.0
Raspberries	180.138	7.0
Rice	180.138	5.0
Rutabagas	180.138	7.0
Rye	180.138	5.0
Sheep, fat of meat	180.138	7.0
Sorghum, grain	180.138	5.0
Soybeans, dry form	180.138	2.0
Spinach	180.138	7.0

(continued)

	40 *CFR* Reference	Parts per Million
Strawberries	180.138	7.0
Sunflower seeds	180.138	0.1
Tomatoes	180.138	7.0
Walnuts	180.138	7.0
Wheat	180.138	5.0
Youngberries	180.138	7.0

The tolerances set by the EPA for toxaphene in food are as follows (the *CFR* Reference is to Title 21):

	CFR Reference	Parts per Million
Soybean, oil, crude	193.450	12.0

References

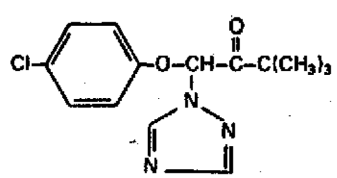
(1) Worthing, C.R., *Pesticide Manual,* 6th ed., p. 76, British Crop Protection Council (1979).
(2) Spencer, E.Y., *Guide to the Chemicals Used in Crop Protection,* 6th ed., p. 506, London, Ontario, Agriculture Canada (January 1973).
(3) Buntin, G.A., U.S. Patent 2,565,471, August 28, 1951, assigned to Hercules Powder Co.
(4) Buntin, G.A., U.S. Patent 2,657,164, October 27, 1953, assigned to Hercules Powder Co.
(5) Phillips, M.A., *Brit. Chem. Eng.,* 10, No. 8, 550-51 (August 1965).
(6) Midwest Research Institute, *The Pollution Potential in Pesticide Manufacturing,* Washington, DC, Environmental Protection Agency (June 1972).

TRIADIMEFON

Function: Fungicide (1)(2)

Chemical Name: 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazol-1-yl)-2-butanone

Formula:



Trade Names: Bay Meb 6447 (Bayer AG)
Bayleton® (Bayer AG)

Manufacture (2)

35.8 grams (0.2 mol) of α-bromo-pinacolone in 50 ml of ethyl acetate were added dropwise to sodium 4-chlorophenolate which was prepared from 0.2 mol of 4-chlorophenol and 4.6 grams (0.2 mol) of sodium in 130 ml of absolute alcohol, and the mixture was heated to the boil overnight. Thereafter the sodium bromide produced was filtered off hot, the filtrate was distilled in vacuo and the solid residue was recrystallized from a little ligroin.

1-(4'-chlorophenoxy)-3,3-dimethyl-butan-2-one (73% of theory) was obtained.

6 ml (0.11 mol) of bromine were added to 0.1 mol of 1-(4'-chlorophenoxy)-3,3-dimethyl-butan-2-one and the mixture was heated under reflux to 140°C for 1 hour. The resulting oily residue was taken up with petroleum ether, whereupon it crystallized; the solid residue was filtered off and well rinsed.

1-bromo-1-(4'-chlorophenoxy)-3,3-dimethyl-butan-2-one (89% of theory) was obtained.

0.033 mol of 1-bromo-1-(4'-chlorophenoxy)-3,3-dimethyl-butan-2-one and 9.9 grams (0.15 mol) of 1,2,4-triazole were dissolved in 80 ml of acetonitrile and heated under reflux for 48 hours. Thereafter the solvent was distilled off in vacuo, the residue was taken up with 150 ml of water and the aqueous solution was extracted by shaking three times with 40 ml of methylene chloride at a time. The organic phase was thereafter twice washed with 150 ml of water at a time, dried over sodium sulfate and distilled.

The oil obtained as residue was fractionally recrystallized from a little ether, whereby triadimefon, melting at about 82°C was obtained.

Toxicity

The acute oral LD_{50} value for rats is 560 to 570 mg/kg which is moderately toxic.

References

(1) Worthing, C.R., *Pesticide Manual,* 6th ed., p. 523, British Crop Protection Counci[illegible]9).
(2) Meiser, W., Buchel, K.H. and Kramer, W., U.S. Patent 3,912,752, October 14, 1975, assigned to Bayer AG.

TRIALLATE

Function: Herbicide (1)(2)(3)(4)

Chemical Name: S-(2,3,3-trichloro-2-propenyl)bis(1-methylethyl)carbamothioate

Formula:

$$[(CH_3)_2CH]_2N\overset{O}{\overset{\|}{C}}SCH_2CCl{=}CCl_2$$

Trade Names: CP 23426 (Monsanto)
Avadex BW® (Monsanto)
Fargo® (Monsanto)

Manufacture (3)(4)

To a stirred solution of 202.4 grams (2.0 mols) of diisopropylamine in 1,000 ml of dry ethyl ether at −10° to 0°C there was bubbled in carbon oxysulfide until the gain in weight was 120 grams. This addition required 30 minutes and the mixture was then stirred at −10° to 0°C for an additional 90 minutes. Thereupon 145.4 grams (1.0 mol) of 1,1,2,3-tetrachloropropene was added in one portion and the reaction mixture stirred at 25° to 30°C for 24 hours. The by-product salt was removed by filtration and the excess ether removed in vacuo. The residue was distilled in vacuo and the fraction boiling at 148° to 149°C at 9 mm collected.

Toxicity

The acute oral LD_{50} value for rats is 1,471 mg/kg (B-5) which is slightly toxic.

Allowable Limits on Exposure and Use

Product Use: Issuance of a rebuttable presumption against registration for triallate was being considered by EPA as of September 1979 on the basis of possible mutagenicity.

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

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Telephone (601) 922-8242
(800) 523-0659

7215 Pine Forest Road • Pensacola, FL 32506
Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024 5/5

CLIENT: Vicksburg Chemical Corporation
LOCATION: Vicksburg, MS
DATE: 10/07/86
INVOICE NO.: 011001/lm

COLLECTED BY: Client (7954)
DATE COLLECTED: 10/03/86
DATE RECEIVED: 10/03/86
DATE ANALYZED: 10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105564 - Soil Sample Q
86105565 - Soil Sample R

	IDENTIFICATION NO.				QUALITY CONTROL		
ANALYSES	5564	5565			STANDARD OR SPIKE VALUE	RECOVERY	[illegible]
Toxaphene, mg/kg	<0.1	<0.1			0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
MANAGER QUALITY ASSURANCE

MANAGER ANALYTICAL DEPARTMENT

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LABORATORY REPORT

86.1.3024 4/5

CLIENT: Vicksburg Chemical Corporation
LOCATION: Vicksburg, MS
DATE: 10/07/86
INVOICE NO.: 011001/lm

COLLECTED BY: Client (7954)
DATE COLLECTED: 10/03/86
DATE RECEIVED: 10/03/86
DATE ANALYZED: 10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105560 - Soil Sample M
86105561 - Soil Sample N
86105562 - Soil Sample O
86105563 - Soil Sample P

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5560	5561	5562	5563	STANDARD OR SPIKE VALUE	RECOVERY	RELATIVE DEVIATION
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
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Arthur Cain
MANAGER, ANALYTICAL DEPARTMENT

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Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024 3/5

CLIENT:	Vicksburg Chemical Corporation	COLLECTED BY:	Client (7954)
LOCATION:	Vicksburg, MS	DATE COLLECTED:	10/03/86
DATE:	10/07/86	DATE RECEIVED:	10/03/86
INVOICE NO.:	011001/lm	DATE ANALYZED:	10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105556 - Soil Sample I
86105557 - Soil Sample J
86105558 - Soil Sample K
86105559 - Soil Sample L

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5556	5557	5558	5559	STANDARD OR SPIKE VALUE	[illegible]	[illegible]
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

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(800) 874-0272

LABORATORY REPORT

86.1.3024 2/5

CLIENT:	Vicksburg Chemical Corporation	COLLECTED BY:	Client (7954)
LOCATION:	Vicksburg, MS	DATE COLLECTED:	10/03/86
DATE:	10/07/86	DATE RECEIVED:	10/03/86
INVOICE NO.:	011001/lm	DATE ANALYZED:	10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105552 - Soil Sample E
86105553 - Soil Sample F
86105554 - Soil Sample G
86105555 - Soil Sample H

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5552	5553	5554	5555	STANDARD OR SPIKE VALUE	RECOVERY	[illegible]
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

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Telephone (904) 944-0301
(800) 874-0272

LABORATORY REPORT

86.1.3024 1/5

CLIENT: Vicksburg Chemical Corporation
LOCATION: Vicksburg, MS
DATE: 10/07/86
INVOICE NO.: 011001/lm

COLLECTED BY: Client (7954)
DATE COLLECTED: 10/03/86
DATE RECEIVED: 10/03/86
DATE ANALYZED: 10/07/86

LABORATORY SAMPLE IDENTIFICATION

86105548 - Soil Sample A
86105549 - Soil Sample B
86105550 - Soil Sample C
86105551 - Soil Sample D

ANALYSES	IDENTIFICATION NO.				QUALITY CONTROL		
	5548	5549	5550	5551	STANDARD OR SPIKE VALUE	RECOVERY	RELATIVE DEVIATION
Toxaphene, mg/kg	<0.1	<0.1	<0.1	<0.1	0.59	114	17.7

COMMENT

Analyses conducted in accordance with 40 CFR, Part 136, 1984, Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.

CERTIFICATION

Herbert A. Johnston
MANAGER, QUALITY ASSURANCE

Arthur Carnick
MANAGER, ANALYTICAL DEPARTMENT

BEFORE THE MISSISSIPPI COMMISSION ON NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL

IN THE MATTER OF:	DIVISION OF SOLID WASTE	
MISSISSIPPI COMMISSION ON NATURAL RESOURCES,	REVIEWED BY	
vs.	COMMENTS	ORDER NO. 1046-86
	Prepared	
CEDAR CHEMICAL CORPORATION (Successor to Vertac Chemical Corporation)		

STIPULATION

Based on the testimony and evidence presented by the parties at a hearing held before the Commission on September 16, 1986, on the Respondent's Motion to Dismiss the Complaint hereto fore entered in this cause, and based on subsequent communications between and among representatives of the Respondent, the Mississippi Department of Natural Resources, and EPA Region IV, the parties hereto stipulate as follows:

1. Insofar as dinoseb contamination of soils and sediments at the Respondent's Plant in Vicksburg, Mississippi is concerned, RCRA Regulations are not applicable to the surface impoundment which was the subject of the hearing in this cause, by virtue of the de minimis exception to the so-called "mixture rule" (MHWMR 261.3(a)(2)(iv)).

2. The Parties agree that the record in this cause shall be supplemented for the purpose of facilitating inquiry into whether activities related to toxaphene production at Respondent's Plant by former owners and operators of the Plant were such as to subject the surface impoundment at the Plant to RCRA Regulation, as follows:

(a) Results of EP toxicity analysis for toxaphene and other compounds carried out with respect to the Department's two pond samples which it obtained in August, 1986 and split with Respondent are hereby attached as Exhibit A;

(b) EP toxicity analytical results obtained by the State of a pond sediment sample obtained in 1983 are hereby attached as Exhibit B;

(c) Results of toxaphene analysis, by weight, of 18 retained pond sediment samples gathered by the Respondent in September, 1986, (which were heretofore submitted for analysis of dinoseb, by weight, the results of which were presented at the hearing in this cause) are hereby attached as Exhibit C.

(d) Respondent shall submit to the Commission not later than November 7, 1986 a full and complete response to the questionnaire attached hereto as Exhibit D;

(e) Respondent shall obtain additional pond sediment samples under the direct supervision of the Department, and in accordance with reasonable protocols established by the

the Department, which samples the Department shall cause to be analyzed and the results submitted to the Commission, as soon as practicable following the date hereof, but such analysis to be in accordance with the same methods of analysis and extraction clean-up methods heretofore utilized with respect to the analytical results described in Exhibits A, B, and C.

3. The Department agrees that if the analytical results of the samples taken pursuant to Paragraph 2(e) hereinabove should fail to demonstrate toxaphene in the extract from the sediment at levels at or above .5 parts per million, using the EP toxicity method, and if the levels of toxaphene in the sediment, by weight, are not inconsistent with past de minimis losses of product, as that term is used in MHWMR 261.3(a)(2)(iv)(D), and if there is no evidence that Respondent at any time since November 19, 1980 discharged to or stored in the surface impoundment any untreated, toxaphene-contaminated process wastewater or any sludge from the treatment of such wastewater in connection with toxaphene manufacturing operations at the Respondent's Plant, then Respondent's Motion to Dismiss filed herein should be granted.

4. The Commission's ruling on the Respondent's Motion to Dismiss shall be deferred until the Commission's November, 1986 meeting.

STIPULATED by the parties as of this _______ day of October, 1986.

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

BY: ______________________________

CEDAR CHEMICAL CORPORATION

BY: ______________________________

SO ORDERED:

MISSISSIPPI COMMISSION ON NATURAL RESOURCES

BY: ______________________________

DATE: ______________________________

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851 TELEX 53927

February 21, 1985

1985 FEB 25 AM 10 05

DIVISION OF SOLID WASTE
REVIEWED BY
DATE
COMMENTS Sent to
EPA 11-16-87

Mr. Chuck Estes
Hazardous Waste Section
Mississippi DNR
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Dear Mr. Estes:

Pursuant to our discussion on February 19, 1985 I have written this letter to attempt to articulate a question we have with regard to potential future uses of the surface impoundment at our Vicksburg facility.

Present Description and Status of Surface Impoundment:

1. The surface impoundment has existed for a period of approximately 30 years. Modifications were made to the dikes of the impoundment in 1983 to assure compliance with RCRA standards for structural integrity and overtopping during 100 year flood occurrences. The surface impoundment exists alongside an inactive disposal area which was capped in 1983. Additional cap erosion control measures were taken in 1984. A plan view of the surface impoundment, inactive disposal area, and surrounding wells and piezometers is attached. Groundwater data has been collected since 1981.

2. The purpose of the impoundment is to collect rainwater run off from the south plant and serve as a spill collection system in the south plant (spills will flow through the drainage system to the impoundment or will flow to a sump and be pumped to the impoundment). The exception to this flow pattern is the MSMA plant where rainwater and spills are contained within MSMA plant boundries. No treated or untreated process wastewater is deliberately discharged from the south plant to the impoundment. The impoundment also serves as standby retention basin to receive water diverted from the north plant when that water does not meet pH quidelines for discharge to the Mississippi River. Water in the impoundment is pumped through columns of activated carbon prior to discharge to the Mississippi River.

3. The Bureau of Pollution Control has determined that the impoundment is a hazardous waste management unit.

4. Pursuant to the Bureau of Pollution Control's determination, Vertac has submitted a complete RCRA Part B application and has continually supplemented that application as monitoring data has been collected, as RCRA rules and regulations change and as new questions are asked by the Bureau of Pollution Control. The Part B application contains a closure plan for the surface impoundment.

Present Status of Groundwater Monitoring:

1. An appendix VIII hazardous constituent, dinitro butylphenol, has been found in trace concentration in monitoring well Number 1.

2. Monitoring well number 1 is upgradient of the surface impoundment but downgradient of mounded water underneath the inactive disposal area.

3. The Bureau of Pollution Control has determined that Vertac must analyze the eight RCRA monitoring wells for appendix VIII constituants plus Atrazine. At this time no one in the world is analyzing for appendix VIII constituants to the satisfaction of the EPA. The Bureau of Pollution Control has determined that a New Jersey laboratory, ETC, can make appendix VIII analyses to their satisfaction.

Closure Plan:

1. The closure plan that has been submitted and amplified by Vertac is a simple and conventional plan involving emptying the impoundment by discharging the liquid contents through activated carbon columns and into the Mississippi River, adding dirt to fill the impoundment and then capping the entire impoundment. Any reasonable competent dirt moving firm could execute the plan.

2. Vertac will continue to amplify that simple and complete closure plan as questions are made known. That closure plan will not change for purposes of RCRA Part B permitting, which permitting is necessary because the Bureau of Pollution Control has made a determination that the impoundment is a hazardous waste unit.

Possibilities for the Future:

1. Vertac does not reasonably anticipate retrofit of a double liner system underneath the surface impoundment as envisioned by November, 1984 RCRA ammendments. We believe the present use of the impoundment coupled with geologic, hydrogeologic, and monitoring information gathered since 1981 indicate to date that the impoundment is probably not a RCRA hazardous waste management unit and additionally does not adversely impact the environment; nevertheless, we have deferred to the judgement of the Bureau of Pollution Control that the impoundment is a hazardous waste unit and are proceeding on that basis.

2. We would at some time in the future, but prior to 1988, ammend our closure plan and replace it with a plan the intent of which is declassification of the impoundment, to the satisfaction of the Bureau of Pollution Control, from RCRA hazardous waste management status.

3. The closure plan would involve those steps which I have described in letters of October 17 and December 20, 1984. Specifically, sediment would be removed, to the satisfaction of the Bureau of Pollution Control, from the impoundment. Present analytical information indicate that the sediment is not a hazardous waste. Sewer drains within the plant would be revised such that no spills of product would flow to the surface impoundment. Each process area would be totally contained as is now the MSMA area. The impoundment would be used solely for retention of rainwater prior to treatment and discharge to the Mississippi River.

Question:

Are the regulatory agencies amenable to the closure plan described in "Possibilities For The Future": or must Vertac abandon this surface impoundment, which present data indicate is relatively impervious and has structural integrity, and close it by filling it in with dirt and capping it prior to 1988?

Very truly yours,

Dick Karkkainen

Dick Karkkainen
Director of Environment and Safety

RDK/bh

cc: J. McMillan
J. Herrmann
J. Hill

December 31, 1984

Mr. John Hill
Vertac Corporation
P. O. Box 3
Vicksburg, Mississippi 39180

FILE COPY

Dear Mr. Hill:

Re: MSD990714081
Vicksburg Facility Inspection

On December 14, 1984, I visited the Vicksburg facility. The freeboard for the impoundment was well in excess of the 2' minimum required and the inspections for the impoundment were in order. The recent work on grassing the inactive landfill to prevent erosion appeared to be helping. An area that needs further attention is the required annual training review. All employees involved in hazardous waste management must receive an annual review of contingency and emergency prevention plans and operating requirements. This must be documented in writing for the employees receiving the review.

By January 30, 1985, a copy of the written documentation of the annual review must be received by our office. Should you have any questions, please contact us.

Sincerely,

Charles Estes

Charles Estes, P. E.
Division of Solid Waste Management

CE:cm

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851 TELEX 53927

December 20, 1984

Mr. Chuck Estes
Hazardous Waste Section
Mississippi DNR
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Dear Mr. Estes:

As we have discussed we need to have a meeting to review:

1. declassification of the Vicksburg surface impoundment,
2. program to be followed if the pond is declassified,
3. program to be followed if the pond is not declassified.

I believe that declassification is easy to accomplish. All we have to do is revise process sewer drains and provide adequate concrete spill containment around our DNBP process, formulating and packaging areas such that DNBP spills and water used to clean up the spills will be contained locally and not drain to the surface impoundment. There is no reason to believe that the sediments within the pond are RCRA hazardous. Nor for that matter is there direct evidence that there were spills of DNBP into the pond via the drainage system, the impoundment was declared RCRA hazardous because of the potential. The impoundment does of course contain DNBP from process wastes but that is not RCRA hazardous.

The reasons for declassification involve the new RCRA amendments. The retrofitting requirement for a double-liner with an internal leachate collection system is not cost effective for an impoundment, the main function of which is spill and rainwater control. Additionally the EPA has caused such confusion with the insurance industry that it is likely that environmentally related insurance will not longer continue to exist. Fortunately for Vertac we will be able to pass the RCRA financial tests and will be able to make appropriate certifications. To this end if we could obtain forms with appropriate Mississippi language now it will help avoid future confusion. We will additionally continue to attempt to retain environmentally related insurance but for reasons completely unrelated to RCRA.

If the impoundment is declassified I believe we need to:

1. Complete the description of existing hydrogeologic conditions. In fact I hope we will have a report from IT Corporation available for our meeting.

2. Forget the appendix VIII nonsense.

3. Install a pump in well number 1 and pump it to the surface impoundment.

4. Forget the closure plan, etcetera.

If the impoundment is not declassified or we need time and a program prior to declassification I believe we need to:

1. Complete the description of existing hydrogeologic conditions.

2. Execute HAP analyses of monitoring wells when laboratories are able to assimulate the methodology.

3. Review the closure plan.

Best regards,

Dick Karkkainen
Director of Environment and Safety

RDK/bh

cc: J. Hill

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

September 27, 1984

Mr. Charles Estes, P.E.
Hazardous Waste Section
Mississippi Department of
Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Dear Mr. Estes:

Re: Mississippi Commission of Natural Resources - Order No. 71784

Attached are three copies of the information requested in the above-mentioned order. Please note that we have modified the closure plan to incorporate in-situ containment of all potentially hazardous materials in the subject impoundment. Item numbers correspond to the list of requirements as outlined in the Bureau's letter of June 11, 1984.

I believe we have responded to all items of concern. Dick Karkkainen and I would be happy to meet with you to discuss any further questions or review this submittal.

Sincerely,

John G Hill

John G. Hill
Environmental Engineer

JGH/ld
Enc.

cc - F. Ahlers
R. Karkkainen

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

November 21, 1983

RECEIVED
NOV 22 REC'D
DEPT OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

Mr. Charles H. Estes, III., P.E.
Mississippi Department of Natural Resources
Bureau of Pollution Control
Division of Solid Waste Management
P.O. Box 10385
Jackson, MS 39209

SUBJECT: Dike Improvements - Vertac Chemical Corporation, Vicksburg, MS

Dear Mr. Estes:

Enclosed herewith is a copy of Gee & Strickland letter dated November 16, 1983 by Philip C. Gee, P.E. certifying substantial compliance by the Contractor with the plans and specifications of the contract dated September 14, 1983. This contract was based in part on drawings prepared by MCI/Consulting Engineers (Project 83-560 sheets 1 thru 5 of 5) which are on file in your office, except for the riprap to Elevation 102.0.

The site visit by Mr. Estes and Mr. Spengler on November 17, 1983 confirm the project status on which this letter was based.

Grass was planted on November 15, 1983 on the Dike Improvement Project and the Inactive Disposal Area was reseeded at the same time.

Very truly yours,

Robert W. James, Jr.

Robert W. James, Jr. P.E.
Project Engineer

RWJ/ksh

Enclosure

cc F. Ahlers (w/encl)
F. Bleyer (w/encl)
P. Buford (Buford Const.) (w/encl)
P. Gee (G&S)
D. Karkkainen (w/encl)
D. Madsen (w/encl)
F. Wilson (MCI) (w/encl)

FILE COPY

November 18, 1983

Mr. Dick Karkkainen
Vertac Chemical Company Corporation
24th Floor, 5100 Poplar
Memphis, Tennessee 38137

Dear Mr. Karkkainen:

Re: MSD990714081

On November 17, 1983, Steve Spengler and I visited the Vicksburg facility to review the construction improvements at the inactive landfill and surface impoundment dike.

The inactive landfill had been capped with clean borrow material as required by the approved plans. The grading and capping did not extend as far to the Southwest as indicated on the plans we approved which were prepared by MCI/Consulting Engineers. This area constitutes the ditch and the low areas between the railroad track and the inactive landfill which has filled with sediment.

Because these sediments have shown contamination by organics, we will continue to monitor this area. Should runoff from the area become a problem, capping of the area, as shown in the approved plans, or another method may be required in the future.

The dike appeared to be constructed according to the approved plans prepared by MCI. The plans and engineering report by MCI demonstrated an adequate structural integrity of the dike and an elevation in excess of the 100 year flood.

At the time of the inspection, the dike and capped landfill had just recently been seeded. Should there be insufficient rainfall, watering by sprinkler trucks will be necessary. A good cap on the landfill and integrity of the dike can only be maintained through minimizing erosion. We encourage Vertac Chemical to take all appropriate actions to establish and maintain a vegetation cover to avoid requirements for additional earthwork in the future to repair erosional damage.

Please contact our office, should you have any questions.

Sincerely,

Charles Estes, P. E.
Division of Solid Waste Management

CE:els
cc: Mr. Steve Spengler, BPC

GEE & STRICKLAND, INC.
CONSULTING ENGINEERS & SURVEYORS
1 Openwood Plaza
1104 Openwood St.
Vicksburg, Miss. 39180

Philip C. Gee, P.E.
Joseph G. Strickland, R.L.S.

Phone: 601-636-7831

November 16, 1983

Mr. Bob James, Jr., P.E.
VERTAC CHEMICAL COMPANY
P.O. Box 3
Vicksburg, MS 39180

Re: Dike Improvements

Dear Mr. James:

This letter is to serve as certification that Buford Construction Company has completed the Dike Improvements in substantial compliance with the plans and specifications of the contract dated September 14, 1983. The only major exception is a mowable stand of grass has not been achieved. The grass has been planted and fertilized. A good grass cover should be established within the next several weeks.

Very Truly Yours,

Philip C. Gee, P.E.

PCG/jh

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209
(601) 961-5171

MEMORANDUM

TO: Vertac Chemical Corp. File - Vicksburg, MS

FROM: Steve Spengler SS

SUBJECT: Inspection at Vertac on October 31, 1983

DATE: November 2, 1983

On October 31, 1983 Chuck Estes and myself made an inspection at Vertac to inspect the dike improvements which have been made to the surface impoundment as required by the Commission Order which had been issued to them. The only remaining work to be done was: (1) completing the rip-rapping along the entire length of the dike and (2) placing 3-4 ft. of fill material along the top slope of the dike. We were told that this work will be completed by Friday, November 4, 1983. Those present representing Vertac included;

1. Dick Karkkainen - Vertac
2. Bob Maraman - Vertac
3. Bob James - Vertac
4. Phil Gee - Consulting Engineer

SS:ls

cc: Jerry Cain
Chuck Estes

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851 TELEX 53927

October 28, 1983

RECEIVED
OCT 31 REC'D
DEPT OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

Mr. Charles Estes, P.E.
Division of Solid Waste Management
Mississippi Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

RE: MSD990714081
Your letter of September 29, 1983

Dear Mr. Estes:

1. We have raised the dike 0.3 to 0.5 feet as you have suggested.

2. We have have raised the height of the rip rap on the creek side of the dike to 102 feet elevation to provide more ample protection for our considerable investment.

3. The recalculation has been made by MCI as you suggested and the pond volume has been found to be adequate. The letter from MCI is attached.

4. The technical specifications were changed as requested and construction was implemented so as to avoid slip planes.

5. The technical specifications were changed as requested and construction was implemented so as to prevent run off.

6. Excavated material was placed on the inside.

7. As noted in the attached letter from MCI "The slope stability analyses contained in our report of August 8, 1983, considers failure on both the interior and the exterior of the dike. As you will note, the critical failure surface is on the outside of the dike."

Construction of the landfill remediation and dike improvements has now been completed and awaits your inspection. After your inspection and approval, I would appreciate, and in fact need for both our present non-sudden liability insurance carrier and a firm willing to offer a competitive bid,some statement that is:

a. Documentation certifying that the on-site disposal area has been closed to the Mississippi Department of Natural Resources specifications.

b. Documentation that the surface impoundment has had improvements made to it such that river flooding will not breach the ponds containment walls.

Best regards,

Dick Karkkainen

Dick Karkkainen
Director of Environment and Safety

RDK/bh

cc: S. Spengler

To: [illegible]rree / Spengler

MCI/CONSULTING ENGINEERS, INC.

P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

October 17, 1983

Mr. R. D. Karkkainen
Vertac Chemical Corporation
5100 Poplar
Suite 2414
Memphis, TN 38137

RE: Vicksburg, Mississippi Surface Impoundment Dike; MCI-83-560

Dear Dick:

In accordance with your request, we offer the following comments regarding the September 29, 1983, correspondence from Mr. Charles Estes of the Mississippi Department of Natural Resources the subject project.

(1) Item No. 1: Dike freeboard - We suggest that the dike be raised 0.3 to 0.5 feet by shortening the width of the top of the dike and raising the dike, if this is feasible for maintenance.

(2) Item No. 2: Stream velocity - We recommend either erosion protection such as riprap or Enkamat be placed to elevation 100 or additional dike inspection procedures be implemented to check for erosion.

(3) Item No. 3: Surface Run-on - We have recalculated the amount of runoff into the surface impoundments based on a curve number of 95 for the plant site. Calculations are attached.

(4) Item No. 4: Slip planes - We recommend the specifications be worded to reflect Mr. Estes' comments.

(5) Item No. 5 - Dike operation during construction - We suggest the specifications be worded to reflect Mr. Estes' comments.

(6) Item No. 6: Dike spoil - We recommend the specifications be worded to reflect Mr. Estes' comments.

(7) Item No. 7 - Failure on the inside of the dike - The slope stability analyses contained in our report of August 8, 1983, considers failure on both the interior and the exterior of the dike. As you will note, the critical failure surface is on the outside of the dike.

Please give me a call if you have comments or questions on this information.

Yours truly,

MCI/CONSULTING ENGINEERS, INC.

Felon R. Wilson, P.E.
Manager of Industrial Operations

FRW:jll

Enclosure

cc: Bob James
Bill Rosen

25-Year, 24-Hour Storm Volume Calculations

Bottomland - Adler Soil - C

Composite Curve Number:

	Area	CN
Inactive Disposal Area	3.0	87
Plant Site	20.7	95
Pond Area	4.6	100
	28.3	94

$$CN = \frac{1000}{10 + S}$$

$$94 = \frac{1000}{10 + S}$$

$$10 + S = \frac{1000}{94}$$

$$S = 0.64$$

25 Yr. - 24 Hr. Precip. = 7.74 in.

$$Q = \frac{(p - 0.2S)^2}{p + 0.8S}$$

$$Q = \frac{(7.74 - (0.2)0.64)^2}{7.74 + (0.8)(0.64)} = 7.02''$$

Storage Volume Required

$$V = (7.02'')\ \frac{1\ ft}{12''}\ (28.3\ acres)\ (43{,}560\ ft^2/acre)$$

$$= 721{,}157\ ft^3 = 16.6\ ac.\ ft.$$

Composite Volumes

El	ft^3	Cumulative ft^3	Ac-ft
98	5360	5360	0.12
99	24912	30272	0.69
100	41320	71592	1.64
101	66424	138016	3.17
103	220160	358176	8.2
105	292992	651168	14.9
109	687040	1,338,208	30.7

Water Elevation:

January 5, 1983	101.68
May 9, 1983	101.67
June 15, 1983	102.5
Average =	101.95

Assume water surface at EL 102.0 MSL

Available volume at EL 107.3 = 24.0 Ac-ft - 5.27 = 18.7 Ac-ft
25 yr-24 hr storm volume = 16.6 Ac-ft

Assuming an outflow of 600 gpm, available volume at EL 107 = 21.35 Ac-ft

D.K. 10/28/83

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209
(601) 961-5171

MEMORANDUM

TO: File

FROM: Chuck Estes

SUBJECT: Remedial Actions at Vertac Chemical

DATE: October 26, 1983

On Monday, October 11, 1983, an inspection was made of the remedial action taking place at Vertac Chemical's Vicksburg facility.

The inactive landfill was completely capped. The operation had been completed several days before. As required by the plan approved by the Commission on Natural Resources, the high hill area had been lowered and clean soil brought in to cap the area. Grass seed had been broad cast but there had been no rain to cause germination. A water truck will be used if the area does not get a rain soon. The ditch to the west of the inactive landfill was not capped. This area must continue to be monitored.

The work on the surface impoundment dike is on-going. It appeared that work was centering on completing the rock toe to create a stable base on which to build. The liquid in the impoundment bordering the dike has been lowered to prevent a breech during construction. The completion date is expected to be the end of October. Construction of the dike is as described by the construction plans reviewed by our office.

CE:cbl
cc: Steve Spengler

FILE COPY

September 29, 1983

Mr. Dick Karkkainen
Vertac Chemical Corporation
24th Floor, 5100 Poplar
Memphis, Tennessee 38137

Dear Mr. Karkkainen:

Re: MSD990714081

Your plans, specifications and engineering report for the improvements to the surface impoundment dike at the Vicksburg facility have been reviewed. We have the following comments and recommendations:

1. Section 122.25 a. 11. iii. states that special flooding factors (e.g. wave action) must be considered in designing and constructing the facility to withstand washout from a 100-year flood. Since the top of the proposed dike is at the same elevation as the 100-year flood level, an increase of .3 to .5 feet in the dike height is necessary to protect against washout. As discussed in our telecon on September 23, 1983, EPA's recommendation was for a two-foot increase. Should a basis for a two foot freeboard become evident in the future, this design criterion may have to be re-evaluated.

2. The engineering report indicated that the velocity of the stream increases to elevation 100. However, the rock fill extends to only elevation 95. We are very concerned about possible erosion problems which could affect the dike stability in the future. This concern is based on the past history of the existing dike. Should Vertac Chemical choose not to increase the height of the rock fill, we will attach permit conditions to the final permit to require additional dike inspections during times of high rainfall or stream fluctuations. We will also include a standard for judging erosion problems which will initiate remedial action.

3. Appendix III of the engineering report indicates a curve number for the plant site which is identical to the inactive disposal area. Given that the plant site contains much area which is roofed or concreted it would appear that the curve number should be higher. Please justify this curve number or recalculate 25 years - 24 hours storm volume.

4. Section III. 7. of the Technical Specifications should state that the areas to be filled must be disced or scarified to reduce the formation of slip planes with the fill material.

5. The Technical Specifications document should state that the impoundments must be operated and maintained during construction to prevent runoff into the creek. This is stated in Section 6.0 of the engineering report, but must be restated for the benefit of the contractor.

6. All excavated material from the existing dike must be placed on the inside slope of the new dike. This will reduce the possibility of having contaminated soils on the finished exterior slope of the new dike.

7. A stability analysis for a failure arc from the dike top to the inside slope of the impoundment should be made.

Please respond in writing to these comments and recommendations and/or send us a copy of the contractor's technical specifications addressing the points which are applicable by no later than October 31, 1983.

Should you have any further questions, please contact our office.

Sincerely,

Charles Estes, P.E.
Division of Solid Waste Management

CE:cl

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

SEP 16 1983

4AW-RM

RECEIVED
1983 SEP 20 AM 9: 29

Mr. Chuck Estes
Division of Solid/Hazardous Waste Management
Mississippi Department of Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

Re: Vertac Chemical Corporation, Vicksburg
Surface Impoundment Dike Design

Dear Mr. Estes:

EPA has received the design drawings, the Engineering Report, and the technical specifications for the above project. We have reviewed these drawings and offer the following comments:

1. If soil is removed from the existing impoundment, which has contained a hazardous waste, it must be analyzed in accordance with 40 CFR 261 Appendix II or another approved method to determine if it is a hazardous material. If it is a hazardous waste, it must be disposed of in accordance with state hazardous waste disposal regulations.

2. It was not clear in the report whether the stability analysis for the proposed dike included the condition of having an empty impoundment at the time the flood level is at elevation 109.0. If this condition is possible, such an analysis should be made.

3. The 100 year flood elevation is given as 109.0. This is also the top elevation of the new dike. 40 CFR §270.14(b)(11)(iii) requires any facility located in the 100 year floodplain to be capable of withstanding washout. 40 CFR 264.221(a)(2) requires an amount of freeboard capable of preventing overtopping. Overtopping from a 100 year flood from the outside of a dike due to flooding of the surrounding area could be as disastrous as overtopping from the inside of the dike. Both could result in washout of the dike and loss of the contents of the impoundment. Therefore, we recommend a top of dike elevation at least two feet above the 100 year flood level.

These comments are not intended to imply that EPA has reviewed or approved the stability of the new dike. It is our opinion that responsibility for the structural integrity of the new dike lies with the design engineer and the contractor, who builds the dike.

I hope these comments are helpful in your review of this project. Please contact Hal Emmett at 404/881-3966 if you have any questions.

Sincerely yours,

Douglas C. McCurry

Douglas C. McCurry, Chief
Waste Engineering Section

MCI/CONSULTING ENGINEERS, INC.

P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

AUG 10 REC'D

DEPT OF NAT[illegible] RESOURCE
BUREAU OF POLLUTION CONTROL

August 9, 1983

Mr. Chuck Estes
Mr. Steve Spengler
Mississippi Department of Natural Resources
P. O. Box 10385
Jackson, MS 39209

RE: Vertac Chemical Corp.
Surface Impoundment Dike;
MCI-83-560

Gentlemen:

Per the request of Mr. R. D. Karkkainen, I am sending two copies of plans, specifications, and engineering report for the improvements to the subject dike.

Please advise if you have questions.

Yours truly,

MCI/CONSULTING ENGINEERS, INC.

Felon R. Wilson, P. E.
Manager of Industrial Operations

FRW:kd

Enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JUL 18 1983

4AW-RM

RECEIVED
1983 JUL 20 AM 9:07
AIR & WATER POLLUTION
CONTROL COMMISSION
STATE OF MISSISSIPPI

Mr. Chuck Estes
Division of Solid/Hazardous Waste
Management
Mississippi Department of Natural Resources
P.O. Box 10385
Jackson, Mississippi 39209

Re: Vertac Chemical Corporation, Vicksburg
Surface Impoundment Dike Stability Analysis

Dear Mr. Estes:

In accordance with your request to Don Hunter of my office, EPA has reviewed the dike stability analysis report for Vertac, prepared by MCI/Consulting Engineers.

We are in agreement that the dike should be modified. The report showed it to be unstable as was proven by the dike failure in February 1983. The consulting engineer has suggested three options for providing a more stable dike. Our preference on the options is Option 1, followed by Option 3. Option 1 provides more resistance to a sliding failure due to slip at the base of the dike. We recommend that Vertac consider at least a 2-1/2:1 slope on both slopes and preferably a 3:1 slope. We also recommend protective material such as rip rap on the creek side of the slope. Any option selected should include a provision for stripping the existing surface to a solid base and a key trench.

The idea of providing toe drains for the dike will help to reduce pore pressure and neutral stress in the dike material. This will increase shear strength and lower the likelihood of failure.

It is our opinion that the applicant may select any of the three options for his Part B application; however, final design calculations for the selected proposal must be approved by the permitting agency before construction can begin. These calculations must be based on the actual characteristics of the soil to be used in dike construction and on construction specifications used.

We hope this information proves helpful. Please contact Hal Emmett at 404/881-3966 if you have additional questions.

Sincerely yours,

James H. Scarbrough, Chief
Residuals Management Branch

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851 TELEX 53927

April 25, 1983

RECEIVED
APR 27 REC'D
DEPT OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

Mr. Steve Spengler
Industrial Wastewater Control Section

Mr. Chuck Estes
Division of Solid Waste Management
Mississippi Department of Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

RE: Your letter of March 31, 1983
My Letter of April 7, 1983

Dear Mr. Spengler and Estes:

Attached is a copy of a Purchase Requisition (prices deleted by me) to document our progress on the referenced subject.

Please note that the effort directed toward meeting the July 1, 1983 deadline will proceed as follows:

1. Phase I - testing, calculating, establishing design rationale and conceptual design.

2. Submit to DNR and EPA the report. Meet with DNR to obtain agreement or modification.

3. Phase II - Detailed engineering drawing to be submitted to DNR and EPA prior to July 1, 1983.

4. Await approval from the DNR and EPA prior to commencing construction activity.

I have some considerable concern that a sufficiently timely review by the EPA will be possible such that the November 1, 1983 deadline can be met. Should it not be possible to meet that deadline, the DNR can be assured that continued maintenance and monitoring of the embankment will have high priority.

Best regards,

Dick Karkkainen
Director of Environment and Safety

RDK/bh

VERTAC, INC. SUITE 2414 • 5100 POPLAR AVE. MEMPHIS, TN 38137 • 901/767-6851

PURCHASE REQUISITION

DATE April 22, 1983

REQUIRED DELIVERY DATE

PURCHASE ORDER NO.

PURPOSE

ACCOUNT NO.

ITEM	QUANTITY	UNIT	DESCRIPTION AND CODE	PRICE/UNIT
			Purchase engineering services to accomplish the RCRA	
			Part B informational needs as described in the attached	
			Request for Proposal and as addressed in your communication	
			of February 14, 1983 and modified on April 8, 1983.	
			The services are to include:	
			1. Analysis of hydrodynamic and hydrostatic forces.	
			2. Contract with a driller.	
			3. Sufficient testing of the present embankment to allow	
			for analysis of structural integrity.	
			4. Certification that the present embankment is adequate	
			or conceptual design of remedial measures plus an	
			estimate of engineering cost for remedial design.	
			5. Presentation of the above in report form. (Vertac will	
			submit the report to the Mississippi Bureau of Pollution	
			Control and EPA Region IV.)	
			6. Review meeting with Mississippi Bureau of Pollution	
			Control to discuss commencement of remedial design	
			(to be funded by separate Phase II contract) or	
			certification of adequacy of present embankment.	
			Time constraints are such that Vertac must present the	
			Mississippi Bureau of Pollution Control with detailed	
			engineering plans of remediation or certification that none	
			is necessary on or about July 1, 1983; hence the work	
			described by this purchase should be completed in sufficient	
			time to allow completion of a presently undefined Phase II	
			contract, if needed, or in sufficient time to demonstrate	

SUPPLIER

MCI Consulting Engineers
P.O. Box 23154
McBride Lane
Knoxville TN 37922

TERMS

FOB

FREIGHT FOR ACCOUNT OF ☐ BUYER ☐ SELLER

SHIP VIA

DELIVER TO

ISSUED BY

APPROVED BY

REQUISITIONER'S COPY

VERTAC, INC. SUITE 2414 • 5100 POPLAR AVE. MEMPHIS, TN 38137 • 901/767-6851

PURCHASE REQUISITION

DATE April 22, 1983
Page 2

REQUIRED DELIVERY DATE

PURCHASE ORDER NO.

PURPOSE

ACCOUNT NO.

ITEM	QUANTITY	UNIT	DESCRIPTION AND CODE	PRICE/U
			progress toward completion of the Phase II contract	
			without undo delay.	
			Vertac will proceed with the execution of the Phase II	
			contract, if needed, upon approval of the Phase I plans by	
			the Mississippi Bureau of Pollution Control and will not	
			await U.S. EPA Region IV approval. Upon completion of the	
			Phase II plans, Vertac will submit the plans to the	
			Mississippi Bureau of Pollution Control and U.S. EPA Region	
			IV.	
			Vertac will not, however, undertake any remediation	
			construction without approval of both the Mississippi	
			Bureau of Pollution Control and U.S. EPA Region IV in as	
			much as both regulatory agencies, through the RCRA Part B	
			permit process, can act separately or in concert to deny	
			the adequacy of the remediation if indeed any is needed.	
			Vertac will proceed with diligence and without delay to	
			attempt to complete remedial construction, if needed, by	
			November 1, 1983 as demanded by the Mississippi Bureau of	
			Pollution Control, but at present has no reasonable	
			anticipation that review by the U.S. EPA Region IV will be	
			sufficiently timely to avoid imposed delay.	
			The amount authorized for Phase I is	

SUPPLIER

MCI Consulting Engineers
PO Box 27154
McBride Lane
Knoxville, TN 37922

TERMS

FOB

FREIGHT FOR ACCOUNT OF
☐ BUYER ☐ SELLER

SHIP VIA

DELIVER TO

ISSUED BY

APPROVED BY

REQUISITIONER'S COPY

MCI/CONSULTING ENGINEERS, INC.
P. O. Box 23154
McBride Lane
Knoxville, Tennessee 37922
Telephone (615) 966-9788

April 8, 1983

Mr. R. D. Karkkainen
Vertac Chemical Corp.
5100 Poplar, Suite 2414
Memphis, TN 38137

RE: Request for Proposal dated March 22, 1983; Surface Impoundment Dike, Vicksburg, MS Facility

Dear Dick:

In response to your Request for Proposal, we offer the following cost estimate for engineering services to accomplish the dike analysis portions of the Part B application for the Vicksburg plant.

In order to meet the stability requirements for dikes as specified in the Final EPA regulations, some degree of redesign of the dike at Vicksburg will probably be necessary. This may be as minor as designing a small replacement section, or as major as strengthening the subsurface, replacing the entire dike and raising the top of the dike. Costs for the two extremes can be expected to vary significantly, corresponding to the degree of construction activities required. Similarly, the costs for design can be expected to vary significantly. In our February 14, 1983 proposal to you concerning the dike, we assumed minor design requirements. More effort will likely be required to satisfy the Part B requirements and to provide the design of a structure which will satisfy the criteria established by 40CFR264 for hazardous waste surface impoundments.

Based on the rationale provided, we feel this project must be conducted in two phases. Phase I involves the collection of field and laboratory data as outlined in our proposal of February 14, 1983. Costs for this phase will increase slightly since remobilization of equipment and personnel will be required. The total engineering costs for this phase will be $[illegible] ($[illegible] for professional services and $[illegible] for laboratory testing by Geologic Associates, Inc.). It is assumed that Vertac will contract directly with a driller, at an approximate drilling cost of $[illegible] A proposal will be submitted at the end of Phase I, when a workable method of solving the problem is proposed. Phase II costs will probably vary between [illegible] and [illegible] depending upon the results of Phase I.

Within this budget and project, we offer a one-time cost to analyze and secure the dike. With proper testing and associated design, a structure will be provided which will be reliable and future costs associated with

A Subsidiary of Geologic Associates, Inc.

the dike should be minimal. We hope you agree with this philosophy of solving the problem.

MCI/Consulting Engineers, Inc. appreciates this opportunity to offer our services to Vertac again. Please give me a call if you wish to discuss this information.

Yours truly,

MCI/CONSULTING ENGINEERS, INC.

Felon R. Wilson

Felon R. Wilson, P. E.
Manager of Industrial Operations

FRW:kd

MCI/CONSULTING ENGINEERS, INC.
P. O. Box 23154
McBride Lane
Knoxville, Tennessee 37922
Telephone (615) 966-9788

February 14, 1983

Mr. R. D. Karkkainen
Vertac Chemical Corporation
5100 Poplar, Suite 2414
Memphis, TN 38137

RE: Proposed investigation and Remedial design of Existing Surface Impoundment Dike; Vicksburg, MS

Dear Dick:

Based on our previous discussions, we herewith submit our estimate of costs for the investigation and redesign (if necessary) of the subject dike. We propose to investigate the dike bordering Stout's Bayou by conducting test borings in the dike, installing piezometers, and conducting laboratory soil tests. Ultimately, we will provide you with an engineering evaluation of the stability of the existing dike, and redesign or remedial design as necessary.

The following cost estimates have been developed based on our present knowledge of the condition of the dike.

I. Professional Services:

Senior Soils Engineer - hours @ $ /hr	$
Senior Environmental Engineer - hours @ /hr	$
Hydrogeologist hours @ $ /hr	$
Surveyor hours @ $ hr(Dike Cross-sections)	$
Drafting hours @ $ /hr	$

Expenses:

2 man-trips to Vicksburg, including 2 man-days per diem	$ 940.00
Total Professional Services	$

II. Field and Laboratory Services

1. Field Drilling and Soil Sampling

Mobilization	$
Shelby Tube Samples (30 @ $35/ea)	$
Drilling (120' @ $4.50/ft.)	$
*SUBTOTAL	$

*Direct Contract with Vertac

2. Laboratory Services (Geologic Associates, Inc.)

Triaxial Shear (3 @ $300/ea)	$ 900.00
Permeability (3 @ $140/ea)	$ 420.00
Moisture Content, Density, Unit Weight (10 @ $22/ea)	$ 220.00
Grain Size Analysis (3 @$45/ea)	$ 135.00
Atterburg Limits (3 @ $50/ea)	$ 150.00
SUBTOTAL	$
Total Field & Laboratory Services	$

All field costs are based on the assumption that the subsurface investigations can be conducted by Hall, Brazile. and Assoc. during the week of February 21, 1983. William J. Rosen, Senior Soils Engineer with Geologic Associates, Inc. (GA), will work with MCI on this project. Accordingly we suggest that his laboratory perform the engineering and soil tests. Vitae for Mr. Rosen are attached.

The acquisition of existing published data on Stout's Bayou will be obtained from the Corps of Engineers and U. S. Department of Agriculture while MCI personnel are on-site.

We have prepared this estimate in a manner which we believe will accomplish long term and immediate stability of the subject dike. Field conditions, however, may dictate alterations in the scope of the work proposed, particularly with regard to access. We will need monitoring assistance from the Vicksburg plant with monitoring ground waster levels after piezometer installation.

We are prepared to proceed immediately upon your authorization.

Yours truly,

MCI/CONSULTING ENGINEERS, INC.

Felon R. Wilson

Felon R. Wilson, P.E.
Manager of Industrial Operations

FRW:kd

MCI/CONSULTING ENGINEERS, INC.
P. O. Box 23154
McBride Lane
Knoxville, Tennessee 37922
Telephone (615) 966-9788

EXPERIENCE AND QUALIFICATIONS OF
WILLIAM J. ROSEN

Position with Geologic Associates, Inc. - Senior Engineer
Knoxville, Tennessee

Position with MCI/Consulting Engineers - Senior Soils Engineer

EDUCATION

B. S. C. E., 1973, University of Tennessee, Knoxville, Tennessee
Major Area of Specialization: Construction

M. S., 1974, University of Tennessee, Knoxville, Tennessee
Major Area of Specialization: Soil Mechanics and Foundation
Minor Area of Specialization: Materials
Thesis Title: "Development of Design Criteria for Filter Fabrics"

CONTINUING EDUCATION

Hydrology and Sedimentation, Surface Mining Control and Reclamation Law, Ohio River Valley Soils Seminars VI, VII, VIII, Surface Mining Control and Reclamation Act of 1977, Stability Analysis of Mine Refuse

EXPERIENCE

1981 - Present	Senior Engineer Geologic Associates, Inc. Knoxville, Tennessee
1980 - 1981	Branch Manager Soil and Material Engineers, Inc. Knoxville, Tennessee
1974 - 1980	Part-owner, President Marks-Rosen, Inc. Knoxville, Tennessee
1978 - 1980	Chief Engineer Conrich-Tennessee, Inc.

1976 - 1980	Part-time instructor in Civil Engineering University of Tennessee Knoxville, Tennessee
1976 - 1978	Part-time instructor in Civil Engineering Roane State Community College Harriman, Tennessee

REGISTRATION

Professional Engineer - Tennessee and Kentucky
Registered Land Surveyor - Tennessee

AFFILIATIONS

Tennessee Society of Professional Engineers
National Society of Professional Engineers
American Society of Civil Engineers

PUBLICATIONS AND TECHNICAL PAPERS

Co-author, "Geological Studies of Selected or Marginal Sites for Sanitary Landfills", Report 73-7, submitted to Tennessee Department of Public Health, September 1973.

Co-author, "Cold Weather Lime Stabilization", presented at 53rd Annual Meeting, Highway Research Board, National Academy of Science, January, 1974.

Author, "Geotechnical Oversight Nullifies Proper Procedures", Proceedings of the Seventh Ohio River Valley Soils Seminar, Lexington, Kentucky, October, 1976.

Co-author, "Design and Construction of the Abner Fork Slurry Impoundment: A Case History", presented at the 8th Annual Kentucky Coal Seminar, Pineville, Kentucky, May 4, 1982.

REPRESENTATIVE PROJECTS

Project Engineer for comprehensive field study of the use of a geotextile for erosion control and filter applications.

Project Geotechnical Engineer for extensive embankment fills associated with airport construction in mountainous western North Carolina.

Project Engineer for coal reserve evaluation of 1100 acre tract in southeastern Ohio and 45,000 acre tract in eastern Tennessee.

Project Engineer for corrective procedures involving massive slope stability problems for condominium development in Knoxville.

Project Geotechnical Engineer for Nissan Motor Manufacturing Plant, Smyrna, Tennessee.

Project Engineer for construction services for the A. E. Staley Plant, Loudon, Tennessee.

Biographical Sketch - WILLIAM J. ROSEN

Mr. Rosen, a native of Memphis, Tennessee, graduated from the University of Tennessee at Knoxville in 1973 with a degree in Civil Engineering after participation in the cooperative engineering program. Mr. Rosen furthered his formal education by completion of a Masters Degree from the University of Tennessee in 1974 with specialization in soils and materials. Upon graduation Mr. Rosen formed a partnership in a consulting firm specializing in geotechnical engineering in Knoxville, Tennessee, where he served as chief administrator and consultant. In 1981, he joined Geologic Associates, Inc., in Knoxville as a senior engineer. Mr. Rosen has acted as a geotechnical consultant for a number of projects of substantial scope throughout the United Stated and is a registered engineer in Tennessee and Kentucky. These projects include landslide investigations, remedial treatment of sinkholes, foundation design, post-construction failure analysis, and specialized applications of geotextiles. He is a member of the American Society of Civil Engineers and the National Society of Professional Engineers.

Please propose a cost for engineering services as needed to provide RCRA Part B informational needs and any remedial redesign for a surface impoundment at the Vicksburg facility of Vertac Chemical Corporation.

The spcific regulatory requirements to be addressed are:

40 CFR Part 264 paragraph 122.25 Contents of Part B:

(a) (11) Facility location information.

(iii) "Owners and operators of all facilities shall provide an identification of whether the facility is located within a 100-year flood plain. ...include a copy of the relevant Federal Insurance Administration flood map..".

The appropriate flood plain map (Community-Panel number 280198-0200B) has been examined. The surface impoundment is within the 100 year flood plain.

(iv) "...facilities located in the 100-year flood plain must provide the following information:

(A) Engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood.

(B) Structural or other engineering studies showing the design of ...flood protection devices (...dikes) at the facility and know these will prevent washout."

(b)(3) Specific information requirements...facilities that store, treat, or dispose of hazardous waste in surface impoundments...

(v) A certification by a qualified engineer which attests to the structural integrity of each dike..."

A sketch of the surface impoundment is attached. Additional detai to consider are:

1. Embankments are constructed of loess, the soil typically found in the Vicksburg area.

2. A creek flows directly along one side of the surface impoundment.

3. A section of the embankment failed approximately one month ago. The mechanism of failure is not precisely known to u however, these are facts:

a. the creek bottom has cut downward through the years

b. the embankment sloughed off on the creek side

c. the embankment was probably saturated

d. creek side erosional flood velocity effects are apparent

e. the embankment was not overtopped

f. the failure occurred during heavy rains. Typically during such rains the creek will rise 8 feet within a few hours. After cessation of the rains the creek will drop the same 8 feet within a matter of a few hours.

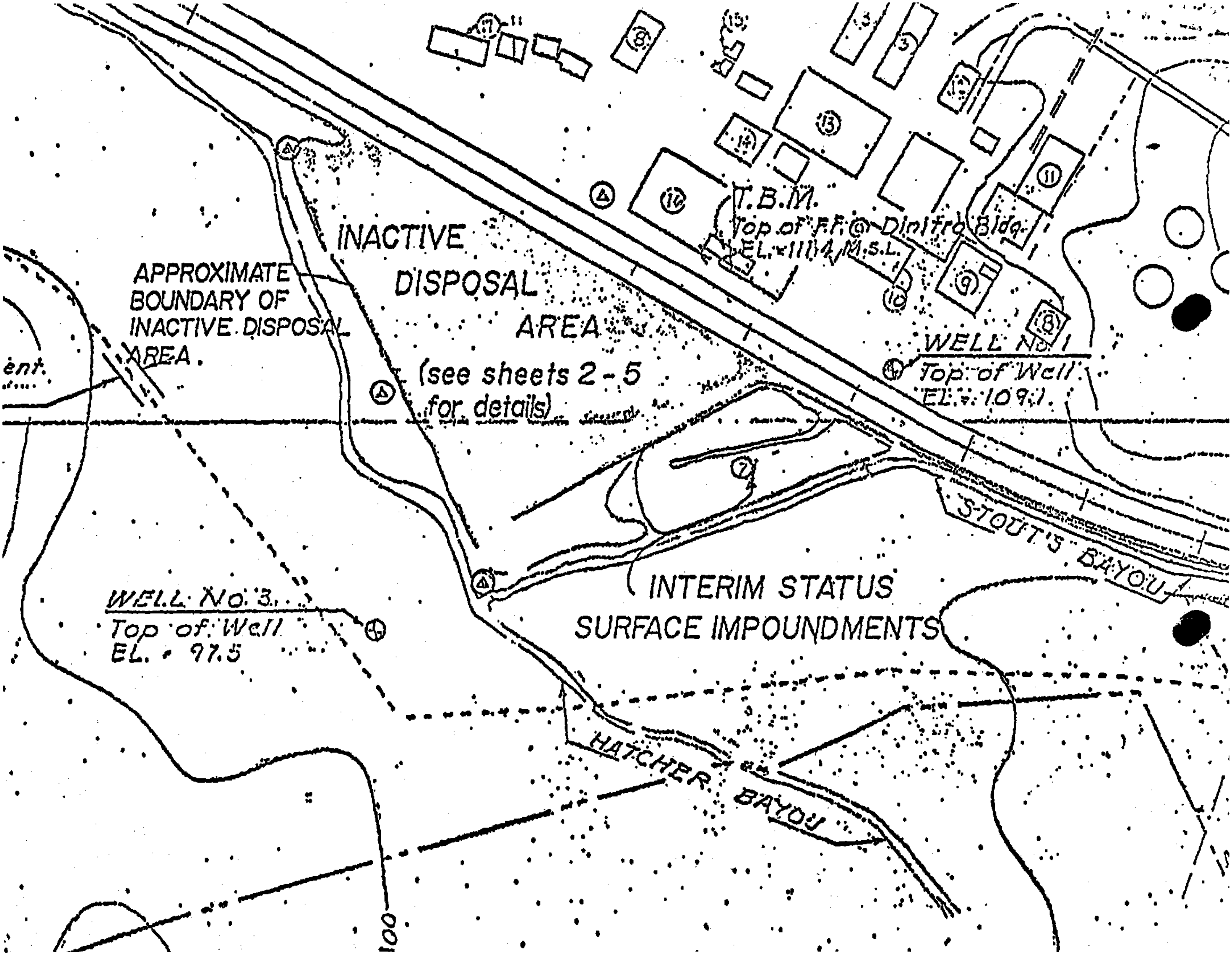
g. After the failure approximately 13,000 cubic yards of dirt were used to strengthen the entire embankment.

With regard to the 100 year flood plain elevation:

a. During such a flood the entire surface impoundment would be 2 to 4 feet under flood waters.

b. Prior to such an occurance, treated process wastewater would be shut off from discharge to the pond.

c. The pond would contain only rainwater run-off contaminated by traces of pesticides. Discharge to the flood waters would be environmentally inconsequential because of the huge volume of flood water. Sediment on the bottom of the pond would fall within the hazardous classification; however, the sediment would remain in the pond. We need to assure that the pond embankment would remain structurally in tact after such an occurance.



T.B.M.
Top of F.F. @ Dinitro Bldg.
EL. = 111.4 M.S.L.
WELL No. 1
Top of Well
EL. = 109.1
INACTIVE
DISPOSAL
AREA
(see sheets 2 - 5
for details)
APPROXIMATE
BOUNDARY OF
INACTIVE DISPOSAL
AREA.
INTERIM STATUS
SURFACE IMPOUNDMENTS
STOUT'S BAYOU
HATCHER BAYOU
WELL No. 3.
Top of Well
EL. = 97.5
100

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851 TELEX 53927

April 7, 1983

RECEIVED
1983 APR 11 AM 9 12
AIR & WATER POLLUTION CONTROL COMMISSION
STATE OF MISSISSIPPI

Mr. Steve Spengler
Industrial Wastewater Control Section

Mr. Chuck Estes
Division of Solid Waste Management
Mississippi Department of Natural Resources
P. O. Box 10385
Jackson, Mississippi 39209

RE: Your Letter of March 31, 1983

Dear Mr. Spengler and Mr. Estes:

Attached is a copy of a Request for Proposal I have sent to many engineering firms. The RFQ deals with the referenced subject matter and I believe addresses all pertinent questions. The feed back I have to date is the study required is non-trivial. I should have additional details within one or two weeks.

Best regards,

Dick Karkkainen
Director of Environment and Safety

RDK/bh

Attch.

cc: F. L. Ahlers
G. D. Madsen
R. F. Maraman

REQUEST FOR PROPOSAL

Please propose a cost for engineering services as needed to provide RCRA Part B informational needs and any remedial redesign for a surface impoundment at the Vicksburg facility of Vertac Chemical Corporation.

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40 CFR Part 264 paragraph 122.25 Contents of Part B:

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1. Embankments are constructed of loess, the soil typically found in the Vicksburg area.

2. A creek flows directly along one side of the surface impoundment.

3. A section of the embankment failed approximately one month ago. The mechanism of failure is not precisely known to us, however, these are facts:

REQUEST FOR PROPOSAL (cont'd)

a. the creek bottom has cut downward through the years

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c. the embankment was probably saturated

d. creek side erosional flood velocity effects are apparent

e. the embankment was not overtopped

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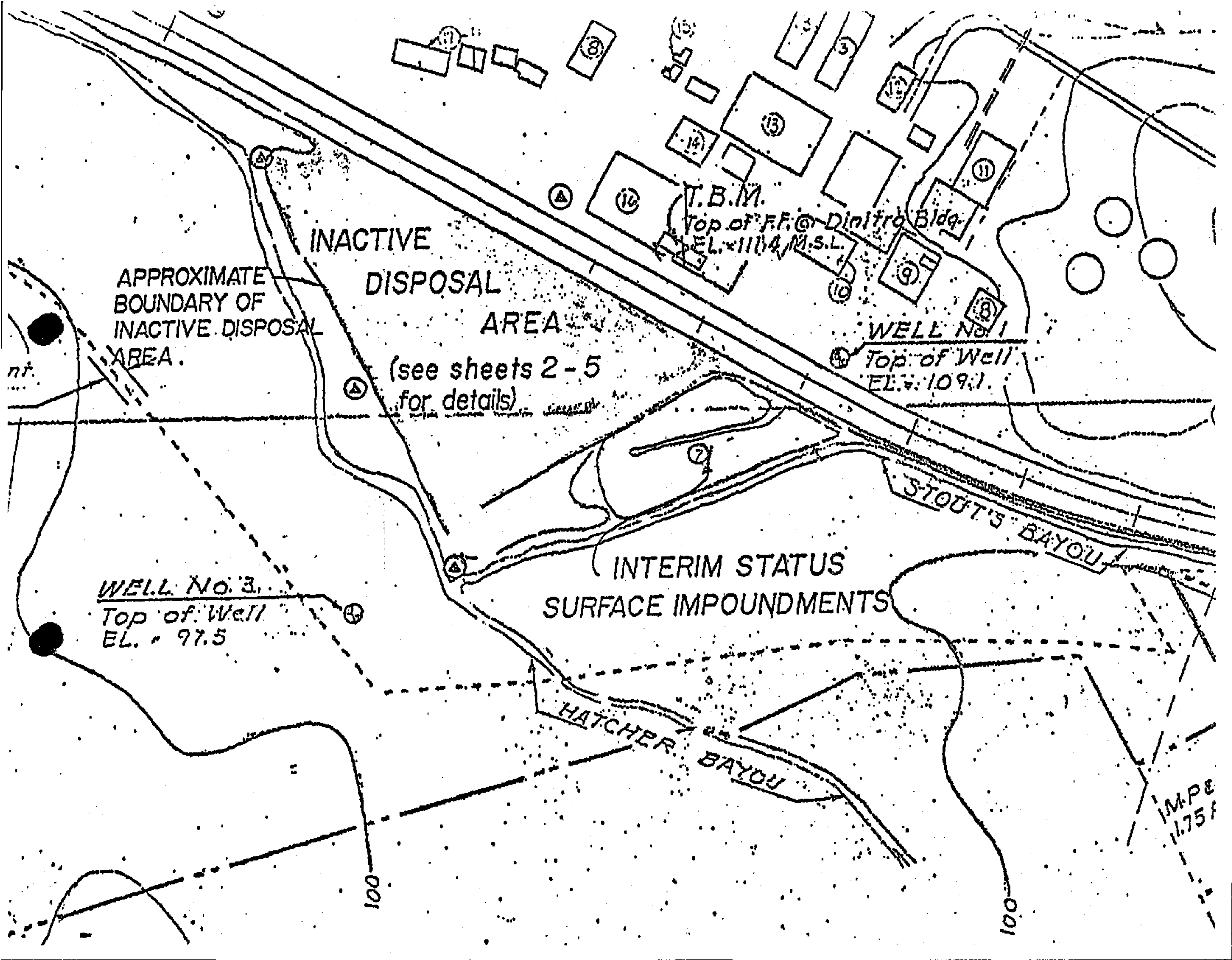
c. The pond would contain only rainwater run-off contaminated by traces of pesticides. Discharge to the flood waters would be environmentally inconsequential because of the huge volume of flood water. Sediment on the bottom of the pond would fall within the hazardous classification; however, the sediment would remain in the pond. We need to assure that the pond embankment would remain structurally in tact after such an occurance.

RJK
7-1-83



INACTIVE
DISPOSAL
AREA
(see sheets 2 - 5
for details)
APPROXIMATE
BOUNDARY OF
INACTIVE DISPOSAL
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T.B.M.
Top of F.F.@ Dinitro Bldg.
EL.=111.4 M.s.L.
WELL No. 1
Top of Well
EL.= 109.1
WELL No. 3
Top of Well
EL. = 97.5
INTERIM STATUS
SURFACE IMPOUNDMENTS
STOUT'S BAYOU
HATCHER BAYOU
100
100

FILE COPY

March 31, 1983

Mr. Dick Karkkainen
Vertac Chemical Corporation
5100 Poplar
Memphis, Tennessee 38137

Dear Mr. Karkkainen:

Re: Vertac Chemical Corporation
Vicksburg Facility

In this letter we will summarize our meeting with yourself and Mr. Marsman on March 14, 1983. As you are aware, the dike on the east side of the surface impoundment at the Vicksburg facility is inadequate. While the improvements made to the structure after the dike failure are providing some integrity, we consider the improvements as strictly emergency or temporary measures to prevent further discharges to Hatcher Bayou until such time as permanent measures are taken. Therefore, we are going to require that Vertac address this problem in a timely manner.

We want to ensure that any plan which Vertac proposes is well engineered and properly addresses the effects of Hatcher Bayou on the structure. Additionally, the proposal should meet the requirements of Section 264.221(c) and (d), as well as 122.25(a)(11)(iv) of the Mississippi Hazardous Waste Regulations. These items deal with overtopping, structural integrity, and the effects of a 100-year flood on the facility.

We request that Vertac submit to our office a proposal for correcting this problem by July 1, 1983. In addition to those items listed above, this proposal should include a design rationale, engineering drawings, and a time frame for completion of this project. This time frame should not exceed November 1, 1983.

If you have any questions do not hesitate to contact us.

Sincerely,

Steve Spengler
Industrial Wastewater Control Section

Chuck Estes
Division of Solid Waste Management

SS:CE:els
cc: Mr. Fred Ahlers
Mr. Bob Marsman

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851

REPLY TO: P. O. BOX 3
VICKSBURG, MS 39180
(601) 636-1231

RECEIVED
1983 FEB 22 PM
AIR & WATER POLLUTION
CONTROL COMMISSION
STATE OF MISSISSIPPI

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1983 FEB 22 PM 9 48
AIR & WATER POLLUTION
CONTROL COMMISSION
STATE OF MISSISSIPPI

February 18, 1983

Bureau of Pollution Control
Hazardous Waste Division
P.O. Box 10385
Jackson, MS 39209

Attention: Mr. Charles Estes

Subject: Report on Holding Pond Incident

In compliance with existing regulations the following report is submitted.

OWNER OF THE FACILITY:

Vertac Chemical Corporation
24th Floor, 5100 Poplar
Memphis, TN 38137
901-767-6851

NAME, ADDRESS AND TELEPHONE NUMBER OF THE FACILITY:

Vertac Chemical Corporation
Vicksburg, MS Plant
P.O. Box 3
Rifle Range Road
Vicksburg, MS 39180
601-636-1231

DATE, TIME AND TYPE OF INCIDENT:

February 5, 1983
Between midnight and 0800.
Fracture in the dike on the East side of the holding pond causing approximately 60% of same to empty into Stouts Bayou.

NAME AND QUANTITY OF MATERIALS INVOLVED:

Approximately 700,000 gallons of waste water containing an estimated 4 ppm Dinitro Butyl Phenol as the major toxic constituent.

EXTENT OF INJURIES:

None to personnel.

No apparent injury to fish, wildlife, or the environment as estimated from subsequent chemical analysis and inspection.

POTENTIAL HAZARDS:

A potential hazard existed to fish and wildlife, but was estimated to be minimal due to the immense volume of rain water run-off in the bayou.

It rained heavily before the fracture and continued to rain through 2-5-83 and until approximately noon on 2-6-83.

ESTIMATION - QUANTITY AND DISPOSITION OF RECOVERED MATERIAL:

Recovered material, estimated at two (2) yards of contaminated mud from the pond, was removed from the fracture repair area and placed back into the pond impoundment area.

In addition to the above, the following is a running account of events from February 5, 1983 through February 14, 1983:

1. 2-5-83 - Approximately 0830:

   Plant officials met at the fracture to assess the situation and determine possible hazards to human health and the environment.

   No hazards were apparent in the immediate vicinity nor did it appear that any evacuation would be necessary.

   Attention was turned to stopping the rain water run-off flowing to the creek. The pond consists of a settling section and a holding section separated by a finger dike except for a 6 foot section to allow effluent passage. Plans were made to first close the settling section, thus stopping the flow to the creek, then repair the fracture in the main dike.

   A contractor, Miller Construction, was called in to start the closing operation.

   The fracture was caused by the heavy rains in the area.

   Approximately 0900:

   The emergency response center was contacted. The situation was reported to Rick Sherrard and he contacted Steve Spengler.

   Approximately 1000:

   The bayou was inspected approximately two (2) miles South of the plant near MP&L. The bayou was muddy and approximately 10 foot deep.

   No fish kills or environmental damage was observed there or in the near by area.

   Meanwhile, Miller Construction had arrived at the plant and closed the finger dike, thus stopping any discharge to the fracture and into the creek.

   The DNBP Plant was shutdown, the Toxaphene Plant was not in operation, and the hill tank flow was stopped. At this time the plant effluent consisted of rain water run-off.

Approximately 1300:

A return trip was made to the bayou near MP&L. The water had risen to near bank level but again no dead fish or apparent environmental damage was observed.

A creek sample was taken. The analysis was 0.4 ppm DNBP and 30 ppb Toxaphene.

Approximately 1600:

Heavy rain had set in.

Steve Spengler visited to inspect the fracture, and obtained samples of the pond bottom. Steve discussed several courses of action and outlined precautions to be taken.

Vertac also sampled the pond bottom. The analysis was 31.6 mg/Kilo DNBP and 132 mg/Kilo.

An emergency watch was set up to prevent leaks from the finger dike dam during the night.

2. 2-6-83:

Since the dike surrounding the pond was saturated from recent rains, it would not support heavy equipment. Therefore, Miller Construction started constructing a road across the "dry" mid section of the pond to reach the fracture. They worked 24 hours per day to reach the fracture.

Steve Spengler visited to review progress and meet with Vertac officials and Dick Karkkainen, the Environmental Manager.

At 1130 the bayou near MP&L was sampled. The analysis was less than 0.1 ppm DNBP and 5 ppb Toxaphene.

The bayou was bank full with water. No dead fish or environmental damage was observed.

3. 2-7-83:

Miller Construction reached and filled the fracture. Reinforcing dirt was placed for almost 15 feet North and South of the closed fracture.

Plans were formulated to extend the existing dike by extending the width to approximately 20 feet, the length of the pond on the East side.

A consultant, Gee-Strickland, arrived to observe repairs and make recommendations.

A 36 inch concrete pipe was placed in the new road allowing the dammed up water to flow to the effluent pumps.

Steve Spengler and Charles Estes collected additional samples and advised moving the contaminated mud that had oozed out from under the dirt fill. The mud was removed by Miller Construction and placed in the "dry" pond area.

During the night water started to breach the access road, but the emergency crew repaired the leak and prevented major damage.

Approximately 1130:

The bayou at MP&L was inspected and sampled. It was about 15 feet deep. No dead fish or environmental damage was observed.

The analysis was nil DNBP and less than 1 ppb Toxaphene.

4. 2-8-83:

A storm front was expected to arrive. It was anticipated that rain water would run from the South hill area into the "dry" portion. A diesel pump was brought in to pump the water into the containment section.

A nearby source of good dirt was located to be used to extend the East dike.

The rain started in the afternoon.

5. 2-9-83:

The rain became a 2 1/2 inch downpour. Run-off water broke through the access road, but the diesel pump kept the situation under control.

The rest of the evening was a holding action.

Stouts Bayou rose to within inches of the top of the fracture repair and sandbags were placed to prevent the bayou from running into the pond.

The repair held with only minor washing on the bayou side.

6. 2-10-83:

Access road and fracture repair brought up to proper elevation.

7. 2-11-83:

Progress continued in a North-South direction on the East dike extention and it was completed on 2-14-83.

Steve Spengler and Charles Estes visited to inspect the progress.

Approximately 1/2 the pond is operational with the remainder to be placed in service as soon as possible.

To this point Vertac has spent approximately $63,000 to repair the fracture.

The strategy to protect Vertac's repair investment is currently being discussed at the corporate level.

R. F. Maraman

R.F. MARAMAN
Chief Chemist

RFM/tsd

cc: Steve Spengler
R.F. Maraman
Effluent File
File

FILE COPY

October 7, 1982

Mr. Dick Karkkainen
Vertac Chemical Corporation
24th Floor, 5100 Poplar
Memphis, Tennessee 38137

Dear Mr. Karkkainen:

During our meeting of September 24, 1982, we discussed moving soil from the upper hill area to be used as cover for major erosional areas on the east and west side of the old landfill and reclaimed pit areas. We are in agreement in principal with this plan as a temporary measure; but we must have a more complete analysis of existing conditions before we can accept the plan. We also want to insure that this measure fits into the final plan for the entire area.

To make a determination a soil sampling project for the entire area must be conducted. This will determine the extent of contamination of on-site soils and the potential for leaching of contaminants. Our office will assist in taking soil samples to be analyzed by your lab. We must have details on the temporary and final construction work for the entire area. This includes topo maps, a timetable, a description of the final cover and vegetation. A description of the final disposition of the contaminated sediments in the ditches bordering the hill area must be addressed. Also, a description and location of additional groundwater monitoring wells needed to meet RCRA requirements must be addressed.

The soil sampling program should begin immediately. Please contact our office to set a time which is convenient for you. Should you have any questions, please contact our office.

Sincerely,

Charles Estes, P.E.
Division of Solid Waste Management

CE:cl

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851
TELEX 53927

October 13, 1981

RECEIVED
OCT 16 1981
DEPT OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

Mr. David E. Lee, P.E.
Environmental Engineer
Division of Solid Waste Management
Mississippi Department of Natural Resources
Bureau of Pollution Control
P. O.Box 10385
Jackson, Mississippi 39209

Re: Modification of our Effluent Pond Closure and Post Closure Plans - Additional Detail and Costs Included

Dear Mr. Lee:

Upon closure, the liquid contents of the effluent pond would be pumped through the Calgon-activated carbon columns as per normal operating procedures at a typical operating expense of $0.13 per gallon. This expense is part of the cost of the products we make and as such is not an extraordinary expense.

The sludge or sediment within the pond would be solidified by adding dirt and then allowing the dirt to dry. The hill to the south of the pond would provide a source of some of the dirt. Additional dirt would be obtained elsewhere from the 600-acre plant site and dumped within the pond area. After adequate drying, the dirt emplaced within the pond would be leveled such that the average depth would be one and one-half feet after compaction. Next, the embankments around the north and south sides of the dried out pond area would be knocked down. Grade would be sloped slightly toward the east end of the area. The final step would be the addition of one foot of clay atop the entire area followed by one-half foot of topsoil, then grass seed.

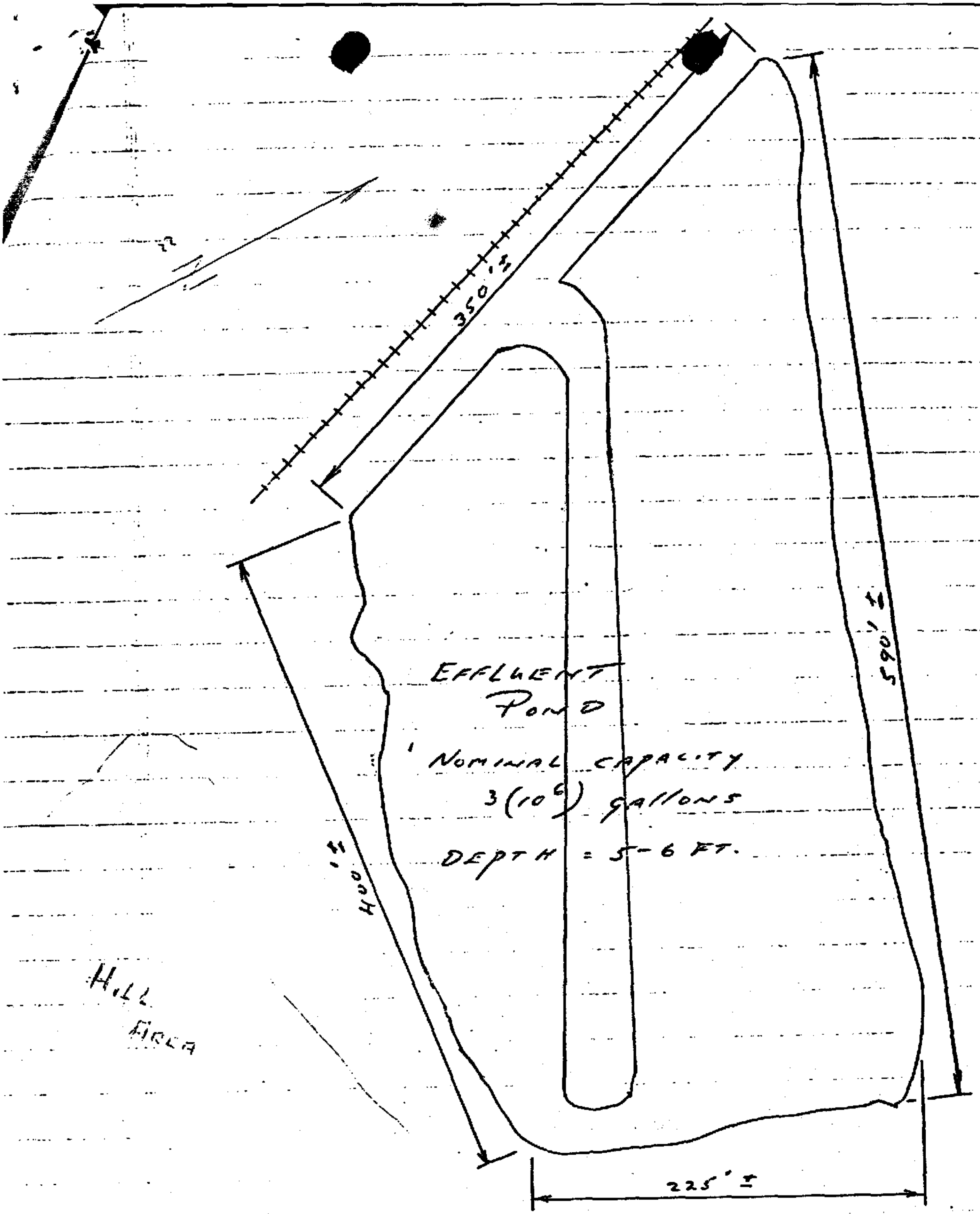
A sketch of the area is attached. The above could be accomplished at an approximate cost of $3.00 per year of dirt moved, with 10,000 yards needed. Additionally, we would continue groundwater monitoring for a period of 30 years post closure, utilizing the four (4) groundwater monitoring wells now in place, at a cost of approximately $2,000.00 per year. Groundcover remedial maintenance would cost an additional $500.00 per year. Hence, total costs are estimated at 10,000 ($3) + 30 ($2,500) = $105,000.

Very truly yours,

Richard D. Karkkainen
Director of Environment & Safety

CC: Mr. F. Ahlers
Mr. R. Guidi
Mr. R. Maraman

RDK:ew



350'±
EFFLUENT
POND
Nominal capacity
3(10⁶) gallons
DEPTH = 5-6 FT.
400'±
590'±
225'±
Hill
Area

VERTAC CHEMICAL CORPORATION
24th Floor • 5100 Poplar • Memphis, TN 38137 • 901-767-6851 TELEX 53927

September 28, 1982

Mr. Charles Estes
Mississippi Department of Natural Resources
Bureau of Pollution Control
Division of Solid Waste Management
P. O. Box 10385
Jackson, Ms. 39209

Dear Mr. Estes:

As a follow up to my letter of August 24, 1982 and our subsequent conversations, I have attached a sketch and herewith propose additional "high hill" locations for purposes of sampling and analyzing to additionally confirm our assertion that that the "high hill" dirt is sufficiently clean to use for remedial work in the two erosional areas identified by the EPA as sampling points VL-002 and VL-003.

The immediate objective of this initial effort would be to move approximately 2,000 cubic yards of dirt for remedial work. With reference to the sketch the top of the "high hill" would be removed to the 125 feet elevation. This is not to be confused with a long range objective of bringing the high hill elevation to 110 feet which effort would involve movement of approximately 80,000 cubic yards of dirt.

I propose that while we are sampling that we can expand the sampling grid over the entire "high hill" area for purposes of ascertaining whether the entire hill of dirt is sufficiently clean to allow eventual progress toward the long range objective.

I propose seven grid samples each grid consisting of four sampling points. At each of the sampling points a hand augered composite sample to a depth of four feet would be taken. The four samples within a grid would then be composited and a split sample given to the State. Our Vicksburg laboratory would analyze the seven grid samples for atrazine, DNBP and toxaphene.

With reference to the sketch the grid samples are defined as follows:

Grid Sample	Sampling Point
1	A,B,C,D
2	E,F,G,H
3	I,J,K,L
4	M,N,O,P
5	Q,R,S,T
6	U,V,W,X
7	Y,Z,α,β

Our efforts would not be intended as an academic exercise in sampling and analyzing. If samples 1 and 2 turned out to be comparable to the results obtained for the "high hill" sampling at a depth of 35 feet then we would anticipate the lack of objection in using the dirt within those grids to a depth not to exceed 4 feet. The dirt would be bulldozed to the two erosional areas on a best effort,best field judgement basis which effort is intended as immediate remedial maintenance probably but not necessarily part of the final plan for the area.

With regard to the long range plan we acknowledge that the information provided by analyses alone may not be sufficient for the State to make final judgement on the adequacy or adviseability of the long range plan, that details may not have been adequately presented, and that a timetable of accomplishment does not exist.

Evidence of gross contamination would cause a mutual decision to create an alternative plan. The long range plan is of course based on the assumption that "high hill" dirt from an elevation of 110 feet upward is clean, which assumption is based on examination of the factual history of the site without preconcieved notion and also the remedial efforts to date.

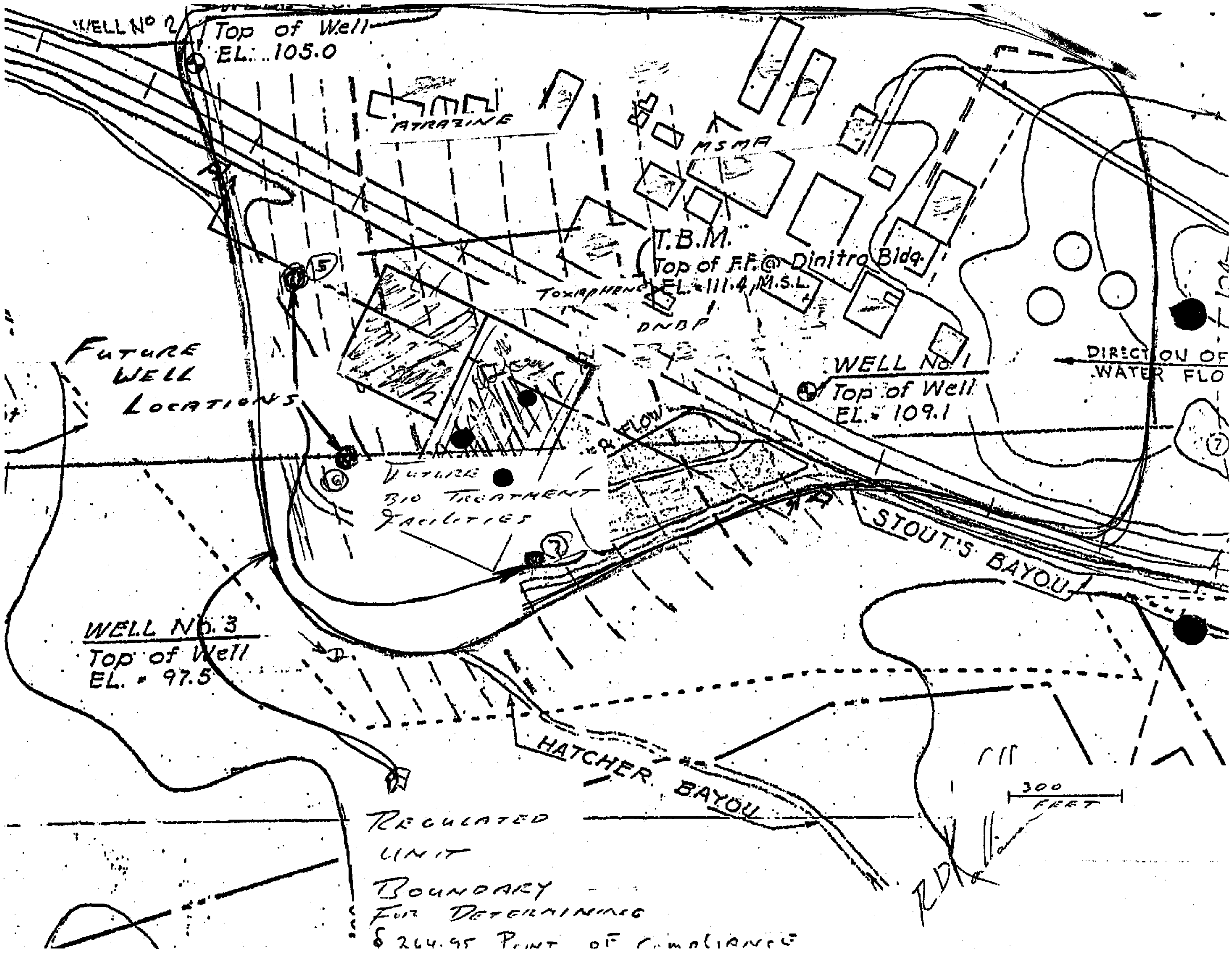
I would like to be present for at least the initial part of this effort. If you are in agreement the last week of October is good.

Best regards,

Dick Karkkainen
Director of Environment and Safety

RDK/bh

Attch.


WELL No 2
Top of Well
EL. 105.0
ATRAZINE
MSMA
T.B.M.
Top of F.F.@ Dinitro Bldg.
EL.=111.4 M.S.L.
TOXAPHENE
DNBP
WELL No. 1
Top of Well
EL.= 109.1
DIRECTION OF
WATER FLO
FUTURE
WELL
LOCATIONS
5
6
7
FLOW
FUTURE
BIO TREATMENT
FACILITIES
STOUT'S BAYOU
WELL No. 3
Top of Well
EL. = 97.5
HATCHER BAYOU
300
FEET
REGULATED
UNIT
BOUNDARY
FOR DETERMINING
§ 264.95 POINT OF COMPLIANCE